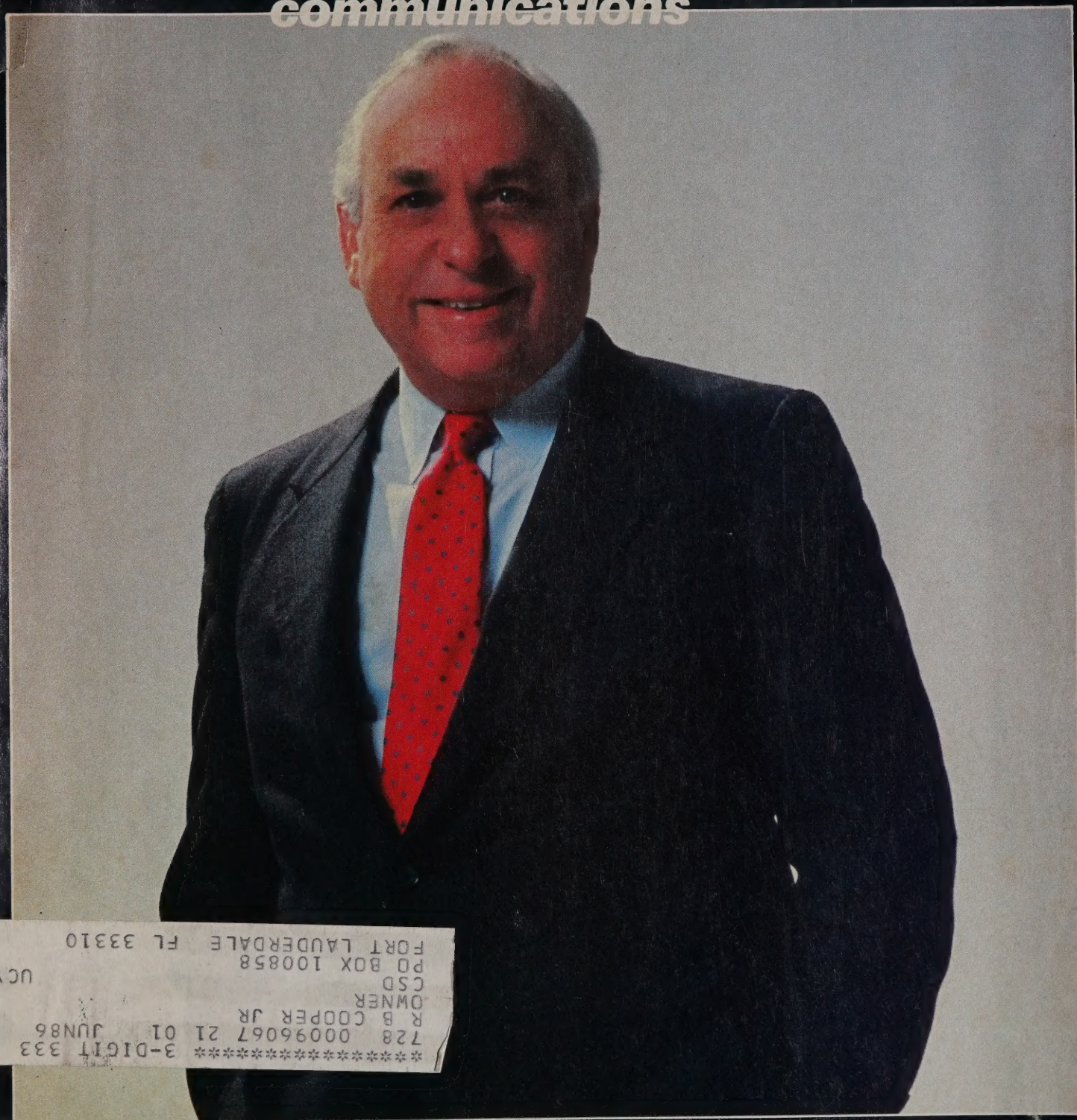
Satellite communications

April 1986



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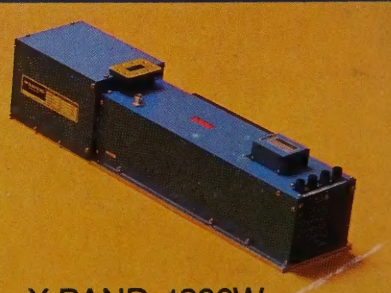

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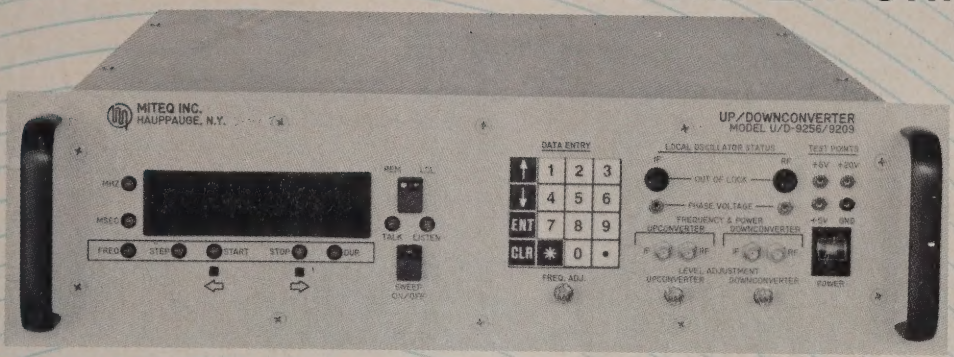

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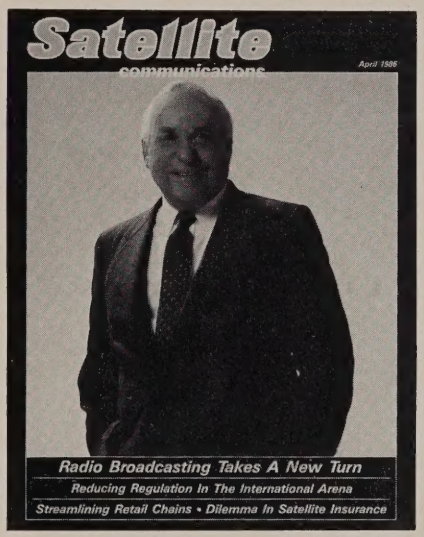
Something Old, Something New 18

Cover Story

Ever since the likes of Ed Sullivan and Milton Berle became household names, radio has been a stepchild to television. But one veteran broadcaster decided to adopt radio as a full-time new business venture. After an initial period of expenditures outstripping revenues, the Satellite Music Network hit its "magic point" and began taking off. Now, more than 600 radio stations subscribe and the economies for those stations are helping their bottom line.


Satellite
communications
April 1986
Radio Broadcasting Takes A New Turn
Reducing Regulation In The International Arena
Streamlining Retail Chains • Dilemma In Satellite Insurance

Retail Gains 25

Private Networks

Many retail operations are looking for ways to streamline their operations as they search for the competitive advantage that gives them a leg up on their rivals. Some have turned to satellite communications to improve training, disseminate information and offer customers better and more services.

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Legislative/Regulatory

Over the past five years the Federal Communications Commission has been involved with a phased deregulation of domestic telecommunications carriers. Now the commission has focused that same kind of attention on the international arena by reducing, but not totally eliminating, the regulatory burdens on carriers providing international telecommunications services, including various satellite communications services.

Insurance Dilemma 39

Business/Finance

The last year has been a difficult time for the insurance industry. Trouble in the upper stages requiring retrieval missions, and an Ariane failure had caused concern among insurors. But it appeared things were leveling out. . .at least until Challenger exploded. The debate is now more strident than ever, with insurors maintaining their commitment to the satellite launch industry, potential government entry into the market, and satellite companies considering launching birds without insurance.

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Cover: Satellite Music Network Chairman John Tyler. Photo by Bob Mader.

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Publisher's Forum

Focus on April

Judy L. Rudrud
Vice President/Publisher

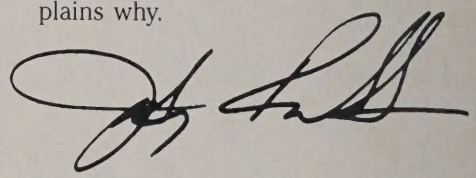
In today's world, broadcasting usually brings to mind television. Certainly it's a pervasive enough influence. But radio broadcasting is still alive and well and this month's cover story, *Something Old, Something New,* by group financial editor, Tom Kerver, outlines how one company has created a niche for itself in radio by utilizing satellites to distribute its signal.

Certainly, other companies have used satellites for the broadcast distribution of radio, but mostly for news programming which did not require high-quality stereo transmission. The Satellite Music Network is simply using techniques learned in the television broadcast industry and applying them to the national distribution of live radio programming. It is also helping radio stations in smaller, less lucrative markets to save money and improve the quality of their offering.

Retail stores also are trying to improve their business, some by increased employee training, others by offering more services to customers, both by using satellite technology to achieve those goals. *Satellite Communications* associate editor Ilene Smith examines that trend in *Retail Gains* on page 25.

On the regulatory front, the FCC continues to move toward deregulation under Chairman Mark Fowler. Washington, D.C., attorneys Andrew Lipman and Emilia Govan explain one instance in the commission's recent ruling to streamline the regulation procedures for non-dominant telecommunications services in the international marketplace.

And finally, the debate on the current state of the launch insurance industry after the loss of the Challenger is greatly intensified. Yet the insurance industry appears firm in its commitment to insure the launching of communicaitons satellites. But, for a variety of reasons, there is potential competition to insurance underwriters for this market. On one hand, the government may become involved as an insuror of last resort, on the other hand, some companies, RCA for instance, are considering launching satellites without insurance. Both are of concern to the insurance underwriting community and *Insurance Dilemma* explains why.



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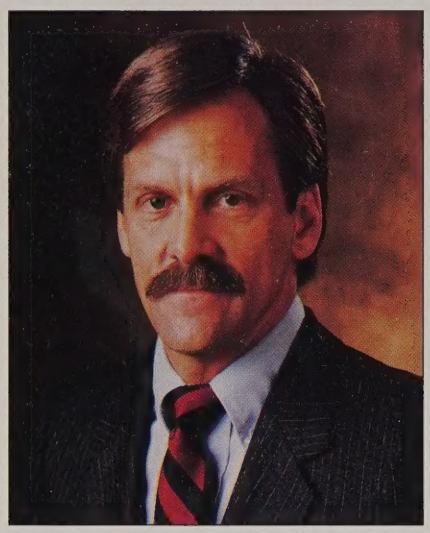

Guy M. Stephens
Editor

Regulation & Economics

The FCC's Office of Plans and Policies recently issued a 75-page report called "Promoting Competition Between International Telecommunications Cables and Satellites." The report recommends deregulating international telecommunications facilities to attain a "more economically efficient level and mix of facilities of investment, and to lower prices for using international facilities."

Those conclusions the report says, are based on the notion that policy should be based on costs rather than allocation of profits among American firms. At present, though, policy includes "rate-of-return" regulation, circuit loading regulation and more, all of which are holdovers relating to the regulation of monopolies. But the international telecommunications marketplace isn't a monopoly and the regulation now only serves to distort the market from an open competition position.

Circuit-loading regulation, for instance, requires users to place a certain percentage of their traffic with a particular carrier, thus distorting the *real* demand situation. In the case of rate-of-return regulation, there is no incentive to operate at the cheapest, most efficient level. Quite the contrary, such regulation can encourage a company to increase costs through inefficient production because it knows prices are guaranteed by regulation to cover long-run average costs.

Clearly, the FCC's report is based on basic, open market principles. In order for the international telecommunications marketplace to attain a competitive climate, these regulations should probably be dropped. Whether that would benefit consumers is still open to question. It will be interesting to see the comments and replies to this report.

Calendar

April 2-4: Video Teleconferencing
George Washington University, Washington, D.C. Contact: Chip Blouin, (800) 424-9773 in the U.S., (800) 535-4567 in Canada and, in Washington, D.C., (202) 676-6106.

April 2-5: Communications Tokyo '86
Harumi International Fairgrounds, Tokyo, Japan. Contact: U.S. Department of Commerce, (202) 377-4642.

April 3-4: ISDN Concepts and Applications
Loews L'Enfant Plaza, Washington, D.C. Also will be held June 3 to 4 in Chicago. Contact: TeleStrategies, Inc., (703) 734-7050.

April 3-4: Satellite V: Challenges and Opportunities in Satellite Communications
Marriott Crystal Gateway Hotel, Washington, D.C. Contact: Conference Registrar, Phillips Publishing, (301) 340-2100.

April 6-8: Satellite Opportunities Expo for Business and Home
Nashville, Tenn. Contact: Dr. Ron Marshall, Center for Telecommunications, The University of Mississippi, (601) 232-7779.

April 7-10: IEEE Infocom '86
Sheraton Bal Harbor Hotel, Miami, Fla. Contact: Bart Stuck, Viatel Corp., (201) 225-1188.

April 7-11: Communications Satellite Engineering
George Washington University, Washington, D.C. Contact: Darold Aldridge, (800) 424-9773 in the U.S., (800) 535-4567 in Canada and, in Washington, D.C., (202) 676-6106.

April 9-12: CommunicAsia '86
World Trade Centre, Singapore. Contact: Vivienne Caisey, Overseas Exhibition Services Ltd., 1 Manchester Square, London, England W1M 5AB. Telephone: 01-486 1951. Telex: 24591 MONTEX G.

April 14-18: Future Trends in Satellite Communications: System Planning, Design and Operation at Ku and Ka Bands
George Washington University, Washington, D.C. Contact: Darold Aldridge, (800) 424-9773 in the U.S., (800) 535-4567 in Canada and, in Washington, D.C., (202) 676-6106.

April 16-18: VSAT Satellite Conference
Hyatt Regency, Washington, D.C. Contact: TeleStrategies, Inc., (703) 734-7050.

April 21-23: Global Position System Principles and Practice
George Washington University, Washington, D.C. Contact: Shirley Forlenzo, (800) 424-9773 in the U.S., (800) 535-4567 in Canada and, in Washington, D.C., (202) 676-6106.

April 22-25: 23rd Space Congress
Cocoa Beach, Fla. Contact: Pat Oliver, (305) 867-4028, or Shea King, (305) 867-2468.

April 23-24: AT&T Marketing Applications Symposium '86
Los Angeles Airport Hilton, Los Angeles, Calif. Contact: Jackie Voigt, (800) 638-8510.

April 27-30: Houston Space and Telecomm Trade Symposium
Houston, Tex. Contact: Jeff Roberts, (713) 777-0266.

April 28-29: Investment Opportunities in Telecommunications
Hyatt Regency, Cambridge, Mass. Contact: IGI Consulting, Inc., (617) 738-8088.

April 28-30: Delivering Education in the Information Age
Radisson-South Hotel, Bloomington, Minn. Contact: Barbara Herrmann, (612) 770-3943.

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Congress: "Saving the Program"

As a nation riveted by the shuttle tragedy demanded answers and explanations, a pragmatic Congress late this winter began begging the more long-term question: in budgetary terms, where do we go from here?

It will be a difficult question to answer, according to members of Congress and a number of their aides. The NASA tragedy was compounded by the coldly bureaucratic fact that it came at a bad time, just as the agency was poised for its annual budget reauthorization on Capitol Hill.

The difficulties were highlighted by the first congressional hearing on the disaster. Members of the Senate Subcommittee on Science, Technology and Space expressed frustration that they couldn't get more rapid results out of the two panels investigating the incident — less to satisfy their own curiosity than to begin setting budget priorities for an agency in stasis.

"Saving the space program" became the theme for some of the panel's members.

"We're the ones who are supportive of the program, and we're the ones who are going to have to save it," declared Sen. Ernest Hollings (D-S.C.), as he pushed for early information from William Rogers, head of the presidential panel appointed to conduct an independent investigation of the accident.

Hollings' point of view was supported by Sen. Jay Rockefeller (D-W.V.), who said, "Our objective is to save the NASA program for the future. . .and to make sure it doesn't get swallowed up by Gramm-Rudman."

The budgetary dilemma was summarized by Sen. Don Riegle (D-Mich.), who said that Congress must "make some decisions here. . .that may or may not fit in nicely" with the on-going investigations. In short, senators put investigators on notice that congressional budgeting must move ahead with or without quick conclusions from the investigating teams.

Dr. Leonard Weiss, Democratic staff director for the Subcommittee on Energy, Nuclear Proliferation and Government Processes, says some senators are concerned about the potential "militarization of NASA. Weiss reflects concern that military payloads will receive higher priority when shuttle flights resume. "I think it's pretty hard" to answer budget questions until these types of questions are addressed, Weiss says.

William Rogers and Neil Armstrong, leaders of the presidential panel investigating the space shuttle Challenger disaster, testified before a packed hearing of the Senate Subcommittee on Science, Technology and Space in Washington, D.C., Feb. 18.

However, a spokesman for one Republican senator thinks political posturing may have something to do with the concern over "saving" the shuttle program.

"I am kind of surprised at (that) approach," says Greg Musil, legislative assistant for Sen. Nancy Landon Kassebaum (R-Kan.), a member of the Space Subcommittee. "I had not heard that or felt that at all until" the hearing, Musil says, "although there's been a concern (over the years) that the shuttle program should maintain. . .civilian, peaceful exploitation of space. This reauthorization is going to be more in the dark than ever," Musil says, "but I think (senators) can make reasonable and rational decisions without the results of the investigation."

Musil points out that much of the budgeting for the shuttle program depends upon the number of flights and types of missions that are planned, something NASA hadn't revised as Congress got down to work on the budget. Despite that, he feels that the previous success of the shuttle program and the two dozen preceding flights will provide enough of a basis for preliminary budget work.

As members of Congress began to crank up the budget machinery, they hinted at a number of questions they'll address in the NASA authorization: whether or not to fund construction of another orbiter; if another orbiter is built, whether or not to reduce per-unit costs by building a fifth one; how far into the future to extend the shuttle program; whether to move NASA toward partial reliance on expendable launch vehicles, and whether the shuttle program should have a military or civilian tilt.

Little of substance came out of the early congressional hearings regarding results of the accident investigation. Rogers and former astronaut Neil Armstrong emphasized that their independent panel intends to finish its work within the four-month period designated by the president. And NASA officials, led by administrator William Graham and associate administrator Jesse Moore, reiterated that they would leave "no stone unturned" in their own investigation.

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Warning: Don't Interfere

Slowly but surely, the FCC is addressing the problem of satellite signal interference (see Industry Watch, *Satellite Communications,* Feb. 1986, p.16).

Urged on by satellite and cable industry complaints of increased interference, the commission has issued two public notices. One advises uplink operators on proper operating procedures, and the other warns off unlicensed operators who may be thinking of intentionally jamming signals.

In addition, an FCC spokesman says the commission will soon unveil a new complaint process to track and register interference problems.

In a letter to uplink operators, FCC field operations bureau chief Richard Smith suggests five operating practices that merit special attention. He reminds operators to use only their assigned frequency; activate only at the assigned time; use only the assigned azimuth and elevation; use only the assigned polarization, and use only the minimum necessary power.

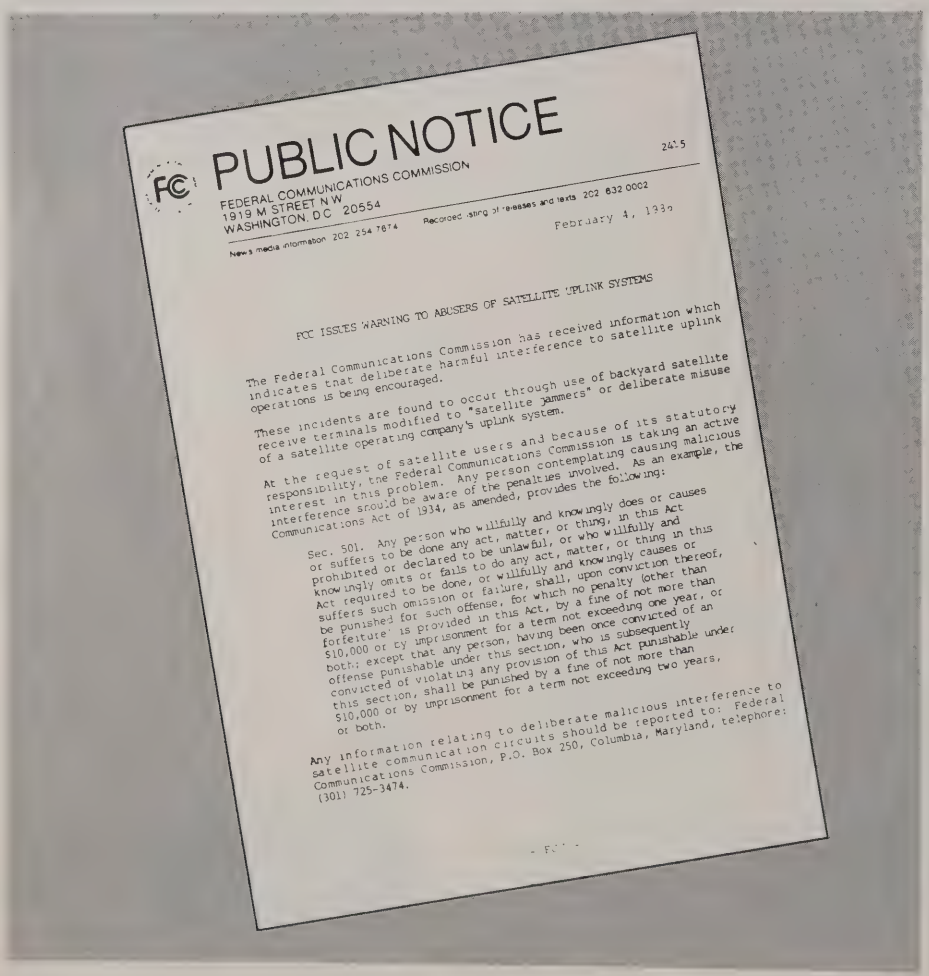
While Smith's letter was fairly upbeat, the warning to potential abusers was terse. (See box below.)

FCC satellite engineer Charles Magin says early reaction to the public notices was limited because they were still being disbursed through satellite operating companies and other organizations with an interest in such matters.

However, in anticipation of a wider reaction to the problem, Magin says the FCC will soon establish a formal complaint process.

Despite the FCC action, Magin believes signal interference is largely an issue to be solved by the industry, not the government.

"We feel it's the users who have to band together and create their own operating regulation to solve any problems the industry may be having," he says.



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February 4, 1986

FCC ISSUES WARNING TO ABUSERS OF SATELLITE UPLINK SYSTEMS

The Federal Communications Commission has received information which indicates that deliberate harmful interference to satellite uplink operations is being encouraged.

These incidents are found to occur through use of backyard satellite receive terminals modified to "satellite jammers" or deliberate misuse of a satellite operating company's uplink system.

At the request of satellite users and because of its statutory responsibility, the Federal Communications Commission is taking an active interest in this problem. Any person contemplating causing malicious interference should be aware of the penalties involved. As an example, the Communications Act of 1934, as amended, provides the following:

Sec. 501. Any person who willfully and knowingly does or causes or suffers to be done any act, matter, or thing, in this Act prohibited or declared to be unlawful, or who willfully and knowingly omits or fails to do any act, matter, or thing in this Act required to be done, or willfully and knowingly causes or suffers such omission or failure, shall, upon conviction thereof, be punished for such offense, for which no penalty (other than forfeiture) is provided in this Act, by a fine of not more than $10,000 or by imprisonment for a term not exceeding one year, or both; except that any person, having been once convicted of an offense punishable under this section, who is subsequently convicted of violating any provision of this Act punishable under this section, shall be punished by a fine of not more than $10,000 or by imprisonment for a term not exceeding two years, or both.

Any information relating to deliberate malicious interference to satellite communication circuits should be reported to: Federal Communications Commission, P.O. Box 250, Columbia, Maryland, telephone: (301) 725-3474.

CSN: Widening Horizons

College Satellite Network (CSN), is now offering special events that are both entertaining and educational. CSN was launched one year ago with a pilot project entitled "Congress: Is It Working?" that was received by 100 schools. But the network didn't undertake its second project until this past February, when it presented a three-program international broadcast that originated from Washington, D.C., Los Angeles and London. The company, according to President Jack Calmes, now has a schedule lined up that will take it through April 1987, with the next program scheduled for Nov. 12.

According to Calmes, an important feature of all of CSN's programming is its interactive nature. Students can ask panelists questions via a two-way audio hook-up. The network also planned to poll students on such issues as high-definition television, the Academy Award nominations and pornography.

Programming is provided to the campuses free of charge and a cash grant of up to $1,000 is provided to eligible colleges and universities. According to CSN, schools can qualify for the grant if they build student interest in the broadcast via advertising, news releases and promotional posters. Campuses must also meet several staging and technical requirements.

Calmes notes that some 200 campuses are already equipped with receiving equipment, but CSN will help those that don't have the equipment obtain it on a rental basis. Calmes also says that campuses "in some cases" are permitted to charge students a small admission fee, but for the most part the company encourages local sponsorship. On a national level, Pepsi has sponsored both the company's pilot project and the Feb. 19 event.

Calmes noted that one of the major shareholders in CSN is Films Inc., a distributor of films and educational materials to colleges. Future plans thus call for the distribution of feature films via both videotape and satellite. Calmes, however, does not expect that to take place for at least another two years. □

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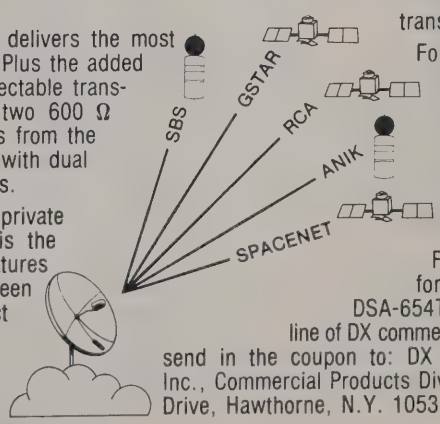

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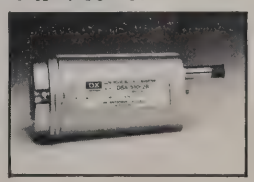

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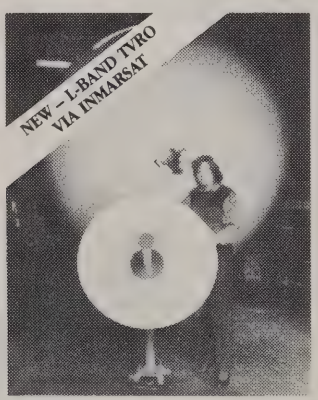

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Industry Watch

MSS, RDSS or Both?

Radio Determination Satellite Service (RDSS) and the still-tentative Mobile Satellite Service (MSS) were the subject of some discussion at this year's Communications Networks show in Washington, D.C.

The key to MSS is that it will provide immediate access to global communications networks, said Michael Exner, president of Skylink Corporation of Boulder, Colo., one of the 12 MSS applicants.

"It is not a service targeted at a market," Exner said. "It's rather an aggregator of markets. . .that will provide operational access to a large number of terminals."

If and when a mobile satellite service gets off the ground, Exner said, any system will include five major elements: mobile or fixed terminals; a hub terminal; a network operations center; a satellite operations control center, and high-power/low-frequency satellites. He cited "dozens of applications" for MSS in fields such as business, transportation and education.

However, Exner's hopes rest with the FCC and a contested frequency allocation that would impinge on aeronautical and land mobile interests.

"There are fundamental public interest reasons" for allocating spectrum to MSS, Exner declared, adding that he believes the "conflict can be resolved in such a way that legitimate concerns. . .can be accommodated." FCC sources have said a decision on MSS frequency allocation can be expected this spring.

Meanwhile, Martin Rothblatt, president of Washington-based Geostar Corp., a purveyor of RDSS technology, pointed out that his service is on the verge of becoming a reality, thanks in part to an FCC frequency allocation last year.

The configuration of an RDSS system is not unlike that of an MSS system. Its purpose, however, is somewhat more precise than MSS, Rothblatt said.

Under the system that Geostar has devised, Rothblatt said a "position fix" on a land-based vehicle or individual can be determined in less than a second.

Although new to the domestic private sector, services offered by MSS and RDSS have been in use on the high seas for several years under the stewardship of Inmarsat, a consortium of nations operating a mobile satellite service for ships around the globe. But Inmarsat Director General Olaf Lundberg says, "I don't think technology is our difficulty." The real challenge, he said, lies in finding markets.

Lundberg indicated that satellite-based systems may simply be too sophisticated for users who can get by on terrestrial-based systems, such as cellular radiotelephone. The best of all worlds would be a "satellite overlay," he said, in which integrated computer software could link a user to the most accessible and available portion of the network, be it land-based or satellite-based.

Lundberg and Rothblatt both stressed the need for international cooperation if MSS and RDSS services are to be implemented worldwide. Rothblatt said next year's World Administrative Radio Conference (WARC) dealing with mobile radio services could establish global frequency allocations to meet that goal. — *Rob Stoddard*

An Open Letter To Owners Of Home Satellite Systems

Dear Home Satellite System Owner:

By now, most of you are aware that HBO® and Cinemax® satellite feeds are scrambled full time.

Unfortunately, along with the news of HBO's scrambling plans has come a flood of misinformation about these plans, as well as about the availability of HBO and Cinemax signals for home satellite system owners. Understandably, many of you have expressed concern over these issues. We would like to set the record straight on some of these issues so that you may have the information you need to make the choices you will be faced with when scrambling occurs.

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An increasing number of commercial enterprises — including hotels, motels, bars and apartment buildings — are picking up our signals without permission and without charge. This is a violation of the copyrights of artists and businesses with whom we have contractual agreements to provide programming. Signal scrambling is the best way to protect these copyrights. At HBO, we are careful to distinguish between the legitimate reception of our signals by individual satellite system owners and theft by commercial establishments who may be profiting from our signal. For this reason, we have established a plan to make HBO and Cinemax available to individual satellite system owners.

How can you continue to receive HBO and Cinemax after scrambling?

To continue to receive HBO and Cinemax, you can contact a TVRO dealer or local cable company to purchase a descrambler that uses the M/A-COM VideoCipher II™ technology. You can then purchase a monthly subscription for the programming services you wish to receive. You can do this by contacting a local cable company or, if you prefer, you may purchase a subscription directly from HBO. Please bear in mind that owning a descrambler box alone will not allow you to receive HBO and Cinemax. It simply gives you the capability of receiving unscrambled signals from a growing number of satellite programming services. After you subscribe to HBO and Cinemax, your descrambler will be activated to receive our services.

How much will it cost to subscribe to HBO and Cinemax?

You may subscribe to HBO and Cinemax through a local cable company or through HBO directly. If you subscribe through HBO directly, the monthly prices will be $12.95 for HBO, $12.95 for Cinemax, or $19.95 for the HBO/Cinemax Combo. These prices include our monthly program guide. Prices charged by local cable companies will vary from one company to another. We encourage home satellite system owners to check prices at their local cable companies before contacting HBO for a subscription.

We realize that this letter answers only some of the questions you may have about HBO's scrambling plans. If you would like more information, please call our Scrambling Hotline at (212) 302-6242 during business hours, Monday through Friday, 9 a.m.—5 p.m., Eastern Time. Or, if you prefer, write us and receive *Questions and Answers About Scrambling*, our informational brochure for home satellite system owners. Address your inquiries to:

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Something Old, Something New

A veteran broadcaster is making radio profitable once again — thanks in part to satellite technology.

By Tom Kerver

Ever since the likes of Ed Sullivan and Milton Berle became household names, radio has been a stepchild to television. The growing popularity of cable programming over the past decade hasn't helped either.

Though many broadcasters relegated radio to a second-fiddle position, John Tyler saw it as a medium where new technology could be put to effective use to beam a lively new type of radio programming to listeners in every corner of the nation.

Tyler got into television broadcasting in 1952. He knows the television business as well as any of his broadcasting peers, and he's been extremely successful in translating that knowledge into practical success.

Among the lessons Tyler learned as a television broadcaster was that the networks were treating their radio stepchildren differently from the way they were treating their television affiliates. "At the same time as radio stations were being given short shrift by the networks, they were experiencing financial problems, the causes of which went beyond the nature of their parental treatment," recalls Tyler. "Even though stations were having problems, the cost of buying a station was escalating rapidly; and returns were declining as new owners sought ways of making their investments pay off. But, operating expenses were growing, making any kind of payoff more difficult," Tyler says. By the end of the 1970s, according to Tyler, FCC statistics revealed that more than half the nation's radio stations were either

John S. Tyler, chairman of the Dallas-based Satellite Music Network. Photo by Bob Mader.

losing money or showing a profit of less than $10,000 a year.

Tyler thought he could do something to correct this problem. He sought to employ the same approach — including satellite transmission — which the networks were employing on behalf of their affiliate stations. "Most television programming comes from one central source, and I felt that many unprofitable or marginally profitable radio stations could capitalize on this concept by getting their programming in much the same way," Tyler relates.

Talent Crunch

He saw other potential advantages, too, such as having top quality announcers at small and medium-sized stations. "These stations were experiencing a talent crunch. The really top people were exiting radio for better paying jobs in television. When you could find an exceptional talent at a radio station, it was hard to keep that person, even if you paid a high salary. And, chances are you couldn't afford a high salary anyway because your operating costs were already too high," Tyler says.

These dilemmas could all be resolved, he felt, by putting top announcers and disc jockeys on network-delivered programs while developing the programming formats in such a manner that the audience would come to feel as if it was listening to a local voice. As far as Tyler was concerned, this could only be accomplished through the use of satellite technology.

On Aug. 31, 1981, the Satellite Music Network (SMN), based in Dallas, Texas, went on the air. The initial programming was beamed to three stations using subcarrier technology on WGN's uplink outside of Chicago. The project was financed with $1.5 million, which Tyler and three partners put up in approximately equal proportions.

United Video, WGN's carrier, was one of those partners. But Tyler stresses that he would have piggybacked on a video uplink even if there were no United Video connection. "We were convinced that, initially, being a satellite subcarrier was the simplest and most expeditious way to get the network rolling," Tyler explains.

Still, Tyler wasn't satisfied that this was necessarily the best way for the network to develop. He contracted with Dalsat, a Dallas-based consulting firm, to design the most cost efficient networking technology for his existing and planned program formats. And he hired Carlos Hurd as his director of engineering.

Dalsat advised Tyler to consider using single channel per carrier (SCPC) technology for future development. Hurd concurred, and the new program formats started to originate from the company's Dallas headquarters through two links on Westar IV. "We really were sold on SCPC because it gave us the flexibility of being able to transmit from virtually anywhere," says Tyler.

Despite the commitment to SCPC, the two original SMN formats are still transmitted via Galaxy I along with WGN's signal. It has nothing to do with United Video being an SMN investor, according to Tyler. "Once these music formats became well established, we didn't think it was wise to move their origination to Dallas from Illinois," says Tyler, "because our jocks had developed excellent rapport with their listeners, and we might have risked losing several of them if they were required to relocate."

That audience rapport is one of the most amazing aspects about the live stereo programming which today is being beamed to nearly 600 radio stations in all 50 states, the Virgin Islands, the British West Indies and Bermuda. In each of these locations the listener is made to feel as if the voices coming through his speakers originate locally.

"We do a lot of things to localize the presentation," explains announcer Gary Hamilton, whose voice is heard on more than 50 stations on SMN's "Rock 'N Hits" programming format. "Five or six times each hour we'll break for local announcements on each station. We tape these ahead of time and send them to the stations. They are automatically inserted when we send out a sub-audible tone from our Dallas studios. When the listener hears the same voice that's been introducing music talk about a local event that's coming up, he naturally associates the origin of that voice with his hometown," Hamilton explains.

A former broadcasting teacher, Hamilton fondly remembers the time one of his ex-students heard his voice over a Pullman, Wash., radio station and immediately phoned the station to see if this was the same Gary Hamilton who used to be his teacher. "The station handled it very well," says Hamilton. "They told him I couldn't come to the phone right away and relayed his message to me. I called him back, and we had a great chat, especially once I discovered that he was now Pullman's chief of police."

Besides local announcements, the jockeys will each tape 25 to 30 weather forecasts and reports for insertion at the local level. "There really aren't that many variations in a weather forecast, so it's easy to plug them in at each station. Of course, we'll never announce over the satellite network what the weather is like or even the time or temperature, because these things vary from place to place. We want our listeners to think they are hearing us from down the street, not from 44,000 miles away," Hamilton explains.

On the other hand, the disc jockeys will interject news and feature material over the live network. "But," adds Hamilton, "it will always be something which has national interest."

Another technique which Tyler uses to localize programming is periodic insertion of short features on such subjects as sports, health, family relations and entertainment. Most of these are taped at SMN's Illinois studios. Frequently, these features have local sponsorship; and again, through the coordinated marriage between tape and live programming, the voice of the same announcer who's playing music will often be heard giving the pitch for the local sponsor.

Turning Point

SMN's idea of offering live satellite-delivered radio with local appeal has been enormously attractive to radio stations. It has also been costly. The initial $1.5 million investment by Tyler and his partners grew to $4.5 million before the partners decided an infusion of outside capital was necessary. In 1983, SMN convinced 55 investors, most of them from the Dallas/Ft. Worth area, to pump in an additional $2.5 million. This was followed by a successful public offering.

The units in the public offering (each consisting of two shares of common stock and warrants for two additional shares) stabilized at around $4 per unit until last year, when the price skyrock-

eted by more than 500 percent. Tyler attributes that dramatic increase in part to the hyperactive performance of nearly all broadcasting stocks. "But another important reason was the fact that we reached our magic point in 1985," he says.

The "magic point" Tyler refers to is the apparent end of the "chicken and egg" problem that plagues so many new ventures. In this case, the chicken consisted of the number of stations signed on as SMN affiliates, while the egg was the amount of time being purchased by national advertising accounts. It's hard to convince prospective affiliates to sign up if you can't demonstrate a solid base of support from reputable advertisers. Conversely, it's nearly impossible to get that advertising support without a strong base of listeners.

Tyler chuckles at the thought of how ABC, sensing that Tyler was on to something, tried to establish a network similar to SMN. "They worked at it for about six months and only managed to get four affiliates signed up. It cost them a lot of money before they shut it down." The prospective affiliates, of course, had varied reasons for not signing with ABC, but in many cases it was simply the fact that SMN had a stronger base of national advertising clients by the time ABC tried to enter the market.

Outwaiting Losses

It cost Tyler and his investors quite a bit, too, before the company finally turned profitable in 1985. Until that time, when the egg finally hatched, more than $7 million in cumulative losses were on the books. The bulk of the revenue was coming from affiliate fees.

Today, with the number of listeners well on its way toward passing the two million mark and with more stations in its fold than any other radio network except Mutual, SMN sees the majority of its revenues coming from the source which makes successful broadcasters happiest — national advertising accounts like General Motors, Kraft Foods, Sears, Proctor & Gamble, AT&T, Campbell's Soup and a host of other "blue chips."

As it invariably does, what attracted the likes of these advertisers and their agencies was audience demographics. "During the 6 a.m. to 7 p.m. period Monday through Saturday, we average better than 350,000 listeners age 25 to 54 every quarter hour," says Tyler. He calls that the company's "critical mass," adding that "you really attract the advertisers once you achieve that kind of position."

Larger Markets

According to Kristine Sites, SMN's vice president of marketing, advertising clients are now contacted through field offices in New York, Chicago, Los Angeles and Detroit.

Meanwhile, a separate sales force continues the effort to bring more new affiliates into the SMN fold. No longer are these affiliates only in small or medium markets. "We have stations in Washington, D.C., Boston, Milwaukee and other large cities," says Sites, adding that — besides the nearly 600 SMN stations currently operating — more than 100 others are under contract to become SMN affiliates.

More often than not, the changeover to an SMN format (there are currently five, with more on the drawing boards) involves the purchase and installation of the necessary satellite receiving equipment. "Other than the fact that the quality is much better, you're talking about much the same equipment as an individual might buy for himself to get direct reception at home," says Hurd.

The station may purchase its equipment from any source it chooses as long as it's compatible with SMN's technical specifications. But Hurd adds that SMN has made arrangements with manufacturers which will permit the station to get a bulk purchase discount. "This," adds Hurd, "has managed to get the average station's equipment cost down to the level of about $5,000 or $6,000 from an earlier cost of around $12,000."

Although that's advantageous for the prospective affiliate, it doesn't overcome all the objections which a station might have. "One thing that concerns a lot of stations we talk to is the satellite mystique," says Hurd. "They're afraid they'll be getting involved in some kind of super high-tech situation that's very complex and requires a full time employee or two with advanced degrees to handle the technology."

Hurd says that once the technology is explained to them, the fears quickly vanish. More often than not, Hurd *is* that "full time employee" for most of SMN's affiliate stations. "I spend most of my time troubleshooting their technical problems with them; and, of course, it almost always turns out to be something they can quickly and easily fix," says Hurd.

That's not to imply that stations are constantly experiencing technical problems. "Far from it," says Tyler. "In all my years in broadcasting, I have never seen anything as reliable and efficient as this satellite technology." Most problems that stations encounter and that Hurd helps them overcome usually relate to the affiliate getting used to having an earth station and associated equipment around. "Once they understand how it works we generally stop hearing from them," says Hurd.

All the current programming is on C band. Does Hurd have any plans to switch to Ku? "Right now we don't think it's cost effective to run audio over Ku," Hurd believes. "However," he adds, "when Ku equipment becomes more affordable, perhaps in a year or two, we'll probably start simulcasting on C and Ku and give our stations the option of going in either direction. If everything goes as it seems to be going, this transition period will eventually lead to full-scale programming on Ku, but I don't want to predict when that might happen."

While Hurd is reluctant to make predictions about technology, Tyler doesn't hesitate to predict what's in the cards for SMN. "I'm a firm believer in goals," he says, "and our goal is to be doing $100 million a year in revenues by 1990. Frankly I think that figure is too low."

Tyler is a hands-on manager who expects top performance from every one of his more than 100 employees. But he also believes in generously rewarding them for that kind of performance. The formula has worked well so far, and there's no reason to expect that it won't continue to work well.

There's no stopping SMN at political or geographic boundaries, either. "Our goal is to become a global communications company," says Tyler. For someone who has recognized how to make satellite technology work on his behalf, that kind of goal seems very reasonable.□

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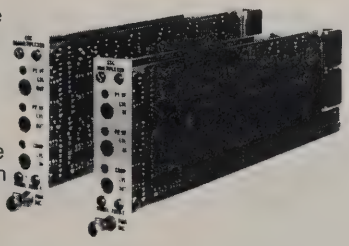

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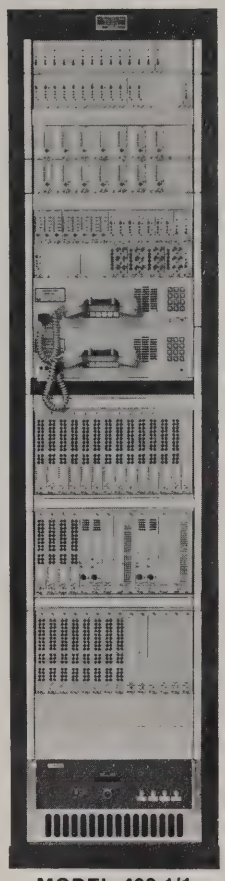

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Retail Gains

Retailers are finding that corporate satellite networks are an effective way of reaching field store operations, customers and, in some cases, new consumer groups.

By Ilene V. Smith

They range in size from over 100 stores to 750. They sell everything from convenience items such as milk, eggs and coffee to such products as Lotus' Symphony and IBM personal computers. Their delivery requirements run the gamut from voice to video to data. But whether you're talking about Wal-Mart, Southland Corp.'s 7-Eleven, JC Penney or MicroAge Computer Stores, there's one thing they all have in common: each is currently putting in a private satellite system that is expected to streamline retail operations.

More companies are using private networks to reach employees at remote locations.

Adding Revenue

To accomplish that streamlining, retailers, like their corporate counterparts, are relying on their private networks as a communications tool designed to reach employees at individual store locations and at branch offices around the country. Yet, retailers are also finding that private networks can be a useful means of reaching customers as well as a way of developing new revenue streams.

Two such operations are those of MicroAge Computer Stores and JC Penney. Launched on trial bases in October 1985 and November 1984, respectively, the two companies are now planning to roll out their Private Satellite Network (PSN) systems across the country.

When MicroAge Computer Stores announced that it would launch a private network to be shared by its franchise store operations, it set for itself two ob-

jectives: to strengthen its relationships with its existing customers and to accelerate the stores' penetration of the office market. To achieve those objectives, the Phoenix-based MicroAge corporate office established a wholly-owned subsidiary, BMUS Corp. (Business Management Uplinking Service), charged with overseeing and programming MCN-TV, as MicroAge's network has been dubbed. MCN broadcasts began six months ago with a network initially only involving 20 of MicroAge's 174 franchises. The number of stores involved, says General Manager Tim Furst, was purposely held down during what he calls "the debugging stage." An additional 60 stores have now signed up to participate in the network and a national rollout was expected this month.

No Purchase Required

To participate in the system, individual MicroAge franchises are not required to purchase any equipment. Instead, each store on the network pays MicroAge a monthly programming and hardware fee that Furst will only say is below $1,000 per month. The 20 to 25 hours per month of programming the franchises receive for that fee are generated from three different sources. MicroAge itself produces programming on such topics as sales training, technical support, advanced systems, marketing methods, positioning strategies and vertical market training. Such programming is produced with the cooperation of Arizona State University in Tempe, where MCN uses the studios of PBS affiliate KAE-TV located at the ASU campus. ASU is also helping to develop training programs that MCN can, in turn, broadcast to its customers.

Computer hardware and software vendors also serve as an important source of programming. Such companies as IBM, AT&T, Compaq, Altos Computer Systems, Wyse Technology, Tallgrass Technologies, Open Systems and BPI Systems have all agreed to sponsor programming. Each of the companies can use MCN-TV's production facilities and must pay an unspecified fee to access the network.

A third group of programming falls into the category of "client-training seminars" targeted toward MicroAge customers. These live seminars have focused on topics including computer-aided design, local area networks and Lotus' Symphony software. Also part of this program is an executive technical seminar series, a monthly program designed to attract MIS managers. Franchise operators can tailor these programs to their individual needs, but Furst notes that many offer hands-on training labs immediately following the broadcasts.

In addition to attracting new customers, these seminars also serve as a new revenue stream. Although each store is run as an independent business, and can therefore set its own prices, Furst says that stores charge as much as $200 to attend a two-hour seminar. Others, he says, include the seminar free as part of a purchase. These seminars, then, are viewed as an additional sales tool and MicroAge plans to conduct tracking studies to see how effective the network has been in influencing sales.

Nevertheless, Furst believes that the true beauty of the network lies in the fact that it allows the company to get information out to its stores more quickly and more effectively. He notes, for instance, that when IBM introduced a new product earlier this year, MicroAge was able to get the information out within one week as opposed to the two months it took prior to the network's installation. This can be particularly important, Furst stresses, in an industry where the shelf life of information is six months at best. As with most video networks, MicroAge also expects to save on the travel costs incurred by the now monthly trips corporate executives make to the individual franchises.

Future plans for MicroAge's network call for the company to take advantage of the Scientific-Atlanta B-MAC technology, which gives the network the capability of delivering one video channel, six digital audio channels and one dedicated data channel. Thus far, MicroAge already has begun experimenting with the delivery of data and has tested the system's ability to deliver a training program on a software package while simultaneouly downloading the disk. Furst also hopes to eventually be able to communicate from one personal computer to another without using a modem.

Although the "software" JC Penney is in the business of selling falls more into the area of apparel, the company plans on using its network to similar ends. The New York-based retailer, however, actually has two networks at its disposal: a five-site, two-way video, two-way audio Ku-band system used to deliver digitally-compressed video to field management centers, and a one-way video, two-way direct broadcast satellite system used to reach buyers at some 160 local stores.

According to Penney's manager of company communications, Russ Longyear, the firm established the first of its two networks, the interactive system, in Jan. 1984 when it built videoconferencing rooms in New York and Dallas. Two additional rooms in Atlanta and Los Angeles were built in Jan. 1985, and the fifth was built in Pittsburgh in Sept. 1985. As that network was growing, so too was the DBS system. Initially started on a test basis in 1984 with 14 stores, the PSN network grew to 95 sites last August and, at press time, Penney's was in the process of adding an additional 54 sites.

Variety of Uses

At first glance, the two networks may appear redundant. They are, however, put to different uses. The older network, Longyear explains, is used to conduct management meetings among the regional directors of such departments as store operations, store layout and design, credit, accounting and data processing.

The DBS network, on the other hand, is used mostly to simplify JC Penney's buying operations. Unlike most department store chains, says Longyear, Penney does not have its local buyers deal directly with wholesalers to purchase merchandise for their individual stores. Instead, Penney has used a two-stage buying process in which a corporate buyer will deal with the wholesalers to select a broad range of merchandise. Local buyers, or merchandisers, as the retailer refers to them, then travel to corporate headquarters or regional offices to select from what the corporate buyer has chosen. Now merchandisers can cut their travel time by attending video presentations conducted from JC Penney's New York production facilities.

Longyear emphasizes that saving on travel expenses is "not the most important part of the savings." In fact, he says,

JC Penney has concentrated on emphasizing the other benefits the network will afford the company since emphasizing travel savings before they are made "puts the cart before the horse." Still, JC Penney has been able to put its finger on some tangible cost-cutting items.

For instance, Longyear expects the company to reap substantial savings by not having to reproduce and ship samples to regional offices for merchandisers to examine. This, he says, will eventually result in a savings of as much as $3 million to $4 million. Another $1 million-plus, he says, can be saved once the company phases out the printed price lists it now distributes. Instead, he notes, prices can be discussed during the course of a video presentation.

Still, Longyear does not discount the fact that substantial cost savings will happen through redundant travel. He notes, for instance, that some 65 apparel buyers originally traveled to New York 12 times a year on buying trips. The number of those trips is now being cut in half. "And that," he says, "is just one merchandising group."

Longyear declines to specify what kind of costs JC Penney is incurring to make those savings, although he does note that the receiving antennas are costing the company $5,000 to $6,000 per site. The only other expenses, he says, are a monthly fee JC Penney pays PSN for uplinking and a per-hour fee it also pays PSN for the satellite time. The retailer currently broadcasts 15 to 20 hours per week.

JC Penney, like MicroAge, however, also plans on turning both its networks into revenue-generating ventures. The five sites in the interactive network are being marketed to outside users under a joint venture with Satellite Business Systems (SBS) and Aetna Life Insurance. Yet Longyear is more excited about a recently formed venture called JC Penney Communications (JCPC) that has already begun marketing the retailer's studio, production and transmission facilities to such entities as General Motors, Squibb, the American bar Association, ABC and NBC for their videoconferencing and other programming needs.

As for how JC Penney plans on reaching its customers with its network capabilities, Longyear says the company is "looking at some possibilities, but nothing specific is planned." One strong consideration is to participate in a PSN venture called MagNet that calls for the establishment of a satellite network connecting shopping centers across the country. According to Longyear, JC Penney could provide programming to the network as well as exploit the opportunities associated with having vendors deliver programming directly to store customers.

JC Penney and MicroAge are just two of the many retailers that are now setting up their own private networks. As MicroAge's Furst says, "We have significant competitive advantage of being able to contact our stores immediately." After all, he explains, "people will not sit down and read through volumes of information, but they will watch a television program. Our generation grew up with this medium." □

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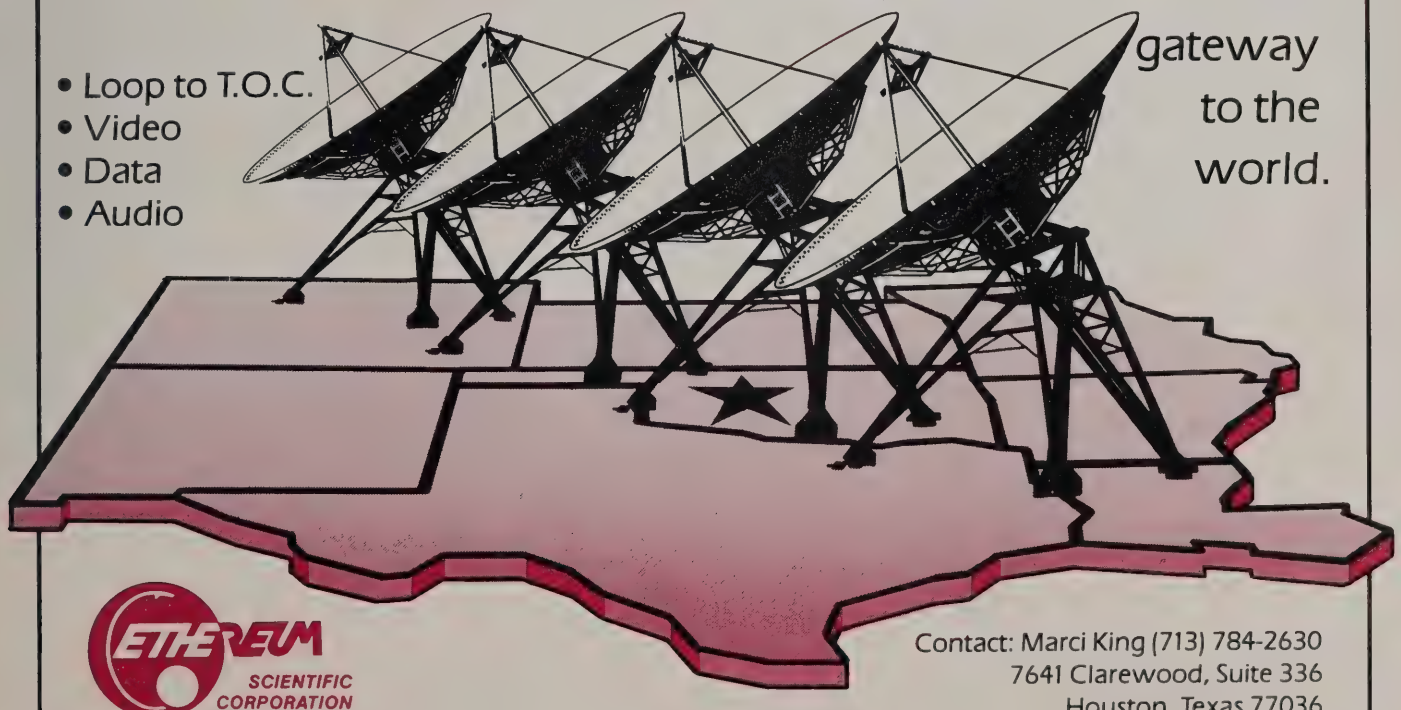

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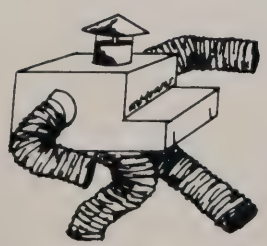

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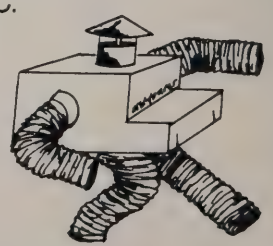

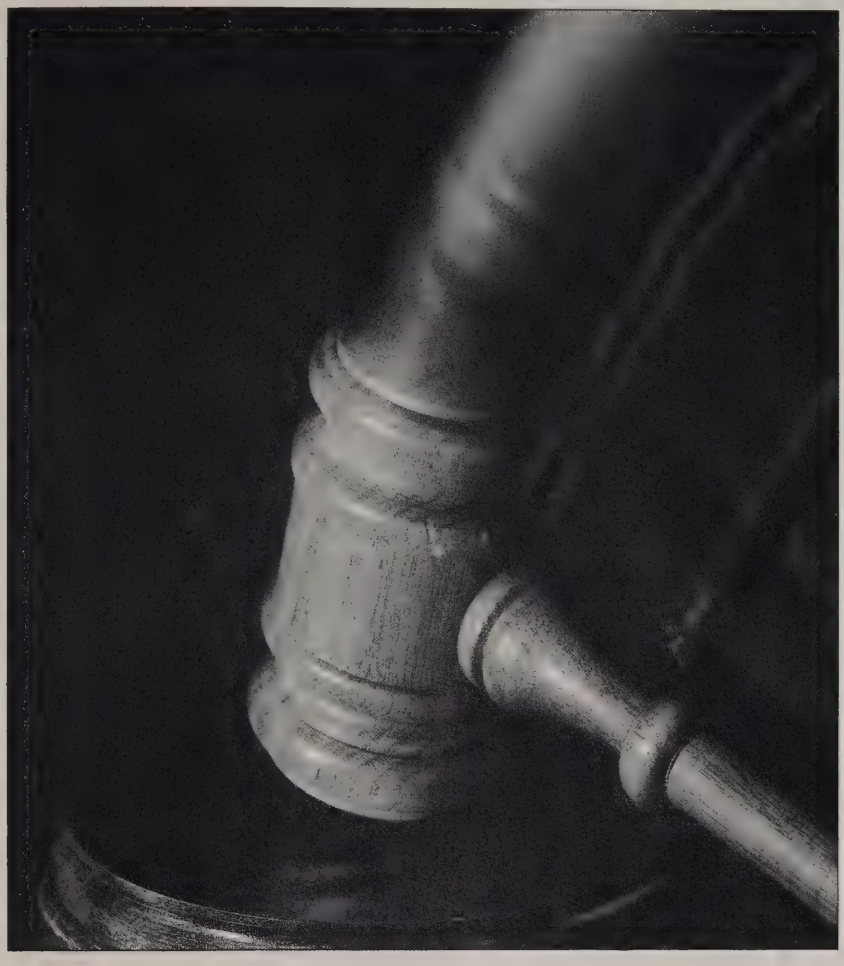

Reducing Regulation

The FCC is cutting back on its control of non-dominant international telecommunications services.

By Andrew D. Lipman and Emilia L. Govan

Applying its five-year experience with phased deregulation of domestic telecommunications carriers to the international arena, the Federal Communications Commission has greatly reduced, but not totally eliminated, the regulatory burdens on carriers providing international telecommunications services, including various satellite communications services.

In its order in the *International Competitive Carrier* proceeding (CC Docket No. 85-107), released Nov. 15, 1985, the FCC decided to "streamline" its tariff and facility regulation of certain non-dominant international telecommunications carriers, including providers of Intelsat Business Services, and international satellite television services. In contrast, dominant international carriers continue to be subject to traditional tariff and other rate of return regulation. Through the FCC's complaint procedures, the commission will retain power to investigate the practices of non-dominant carriers to ensure that their rates and services are just and reasonable.

The streamlining of regulation should be welcome news for small carriers such as Overseas Telecommunications, Inc., International Relay, Inc., and Satellite Reception and Transmission Specialists, which have recently been authorized to provide these international satellite services. Many of them had participated in the rule making in support of the commission's proposal to reduce regulation of non-dominant international carriers. In fact, several parties had urged the FCC to move directly to "forbearance" from regulation of non-

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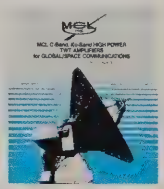

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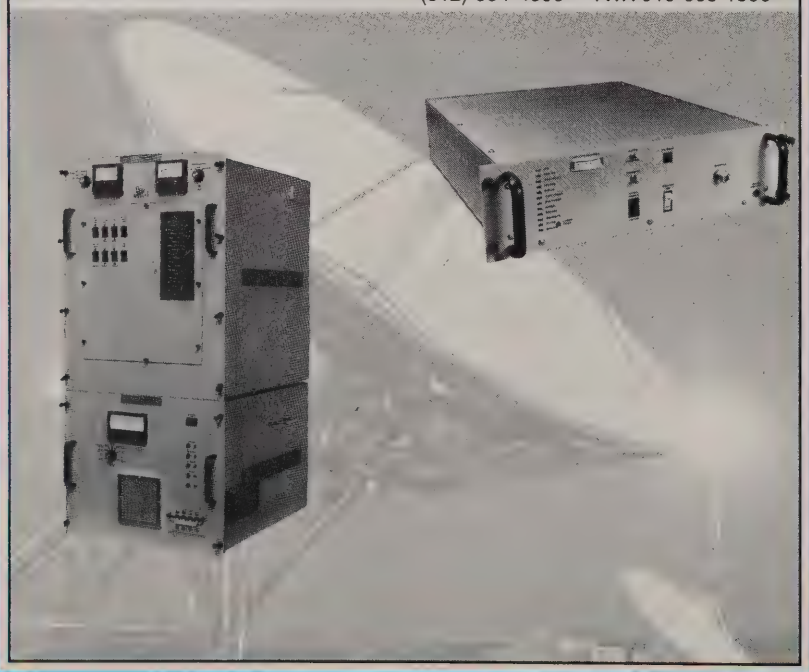
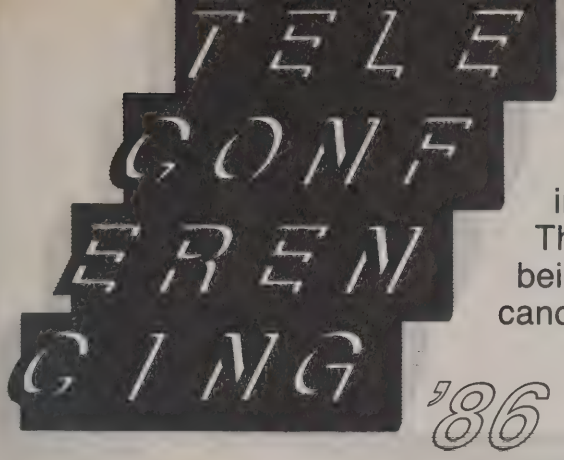


dominant international carriers. The FCC declined to go that far on the ground that, as in the domestic arena, it wanted to evaluate the results of regulatory streamlining before proceeding to an even greater degree of deregulation. If the domestic experience is any guide, it is quite likely that the commission will propose a policy of regulatory forbearance of non-dominant international carriers in the not too distant future.

Also subject to streamlined regulation are certain services provided by the Communications Satellite Corporation through its newly formed subsidiary, Comsat International Communications, Inc. Despite the vigorous objections of many commenting parties, the commission found Comsat to be non-dominant in the provision of IBS and other end-to-end satellite services and thus subject to streamlined regulation for these particular services. Comsat's provision of international satellite television service, however, will continue to be treated as dominant.

The FCC's decision regarding international satellite services was made in the larger context of all competitive international telecommunications services. The November order divided international telecommunications services into two product markets: international message telephone service (IMTS) and non-IMTS. In reaching its conclusions with respect to dominance or non-dominance of a particular service, the commission analyzed the product market, in terms of demand and supply substitutability; the geographic market, with each country constituting a separate market; and market power, defined as the ability to control prices. Based on the FCC's analysis, only AT&T and the primary service providers of IMTS for noncontiguous domestic points — Alascom for Alaska; RCA Globecom for Guam; and Hawaiian Telephone for Hawaii — were classified as dominant in the IMTS market, while no carrier — not even AT&T — was found to be dominant for provision of non-IMTS services to any country. Given its unique situation, Comsat, however, was treated differently for its various service offerings. While its IBS and other end-to-end services will be treated as non-dominant, its space segment, multi-purpose earth station ser-



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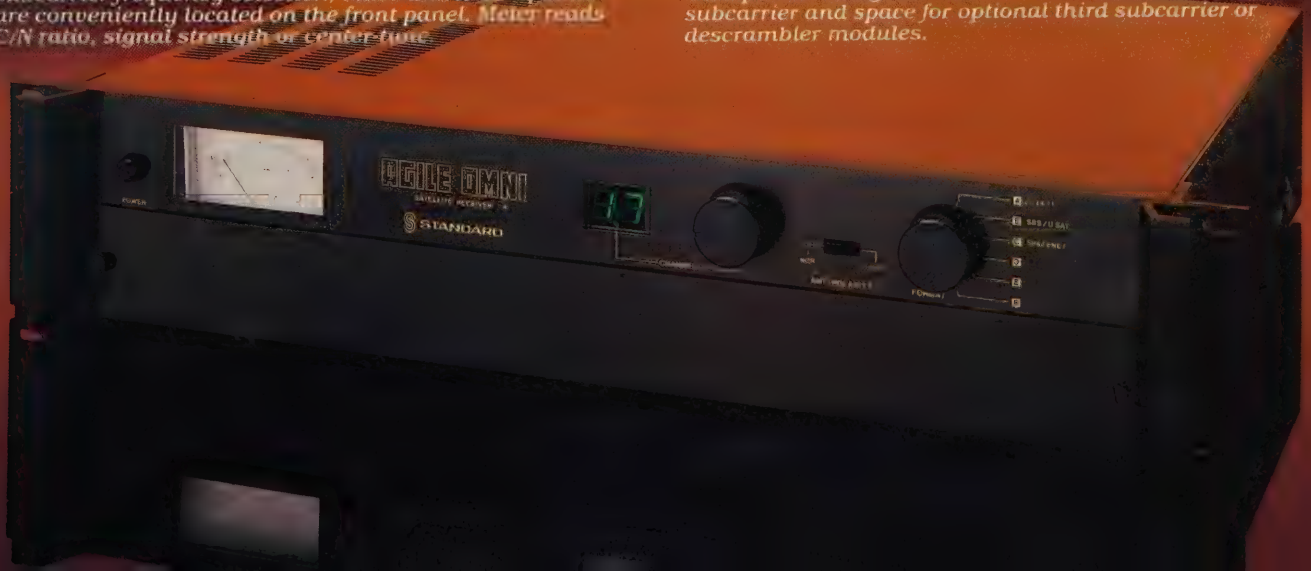

vices and television service will continue to be regulated as dominant.

Interestingly, foreign-owned carriers operating from the U.S. are to be treated as dominant for the provision of all services to countries where they, a parent or an affiliate operate or have a facility. A U.S. carrier will be deemed foreign owned if more than 15 percent of that carrier is directly or indirectly owned by a foreign telecommunications entity or if an employer, agent or representative of a foreign telecommunications entity sits on its board of directors.

In its order, the FCC reached several specific conclusions of particular interest to carriers involved in international satellite communications. With respect to tariffs, the commission will subject to streamlined regulation the tariffs of non-dominant international carriers. Accordingly, tariffs filed by these carriers for services for which they have been found to be non-dominant, such as IBS, will be presumed to be lawful. The economic or cost support data required under traditional tariff regulation no longer needs to be filed to support tariffs for non-dominant services, regardless of the size of the carrier's operations. As a further consequence of streamlined regulation, tariffs for non-dominant services will go into effect on only 14 days advance notice.

Burden of Proof

If a party asks that a tariff of a non-dominant international carrier be suspended, that party will have to bear the burden of proof in opposition to the tariff. In those cases, the FCC's standard of review will be whether the injury to competition that would result if the tariff were allowed to take effect is greater than the harm to the public from not allowing the tariff to take effect.

Under the FCC's order, non-dominant international carriers will also be subjected to streamlined facilities licensing requirements. Specifically, a non-dominant international carrier that has obtained certification under the commission's rules to provide service to a specific country will not be required to file additional applications to add circuits or change facilities to provide services within that same product market to serve that country. The carrier would merely need to file notification of the added circuitry by country. A carrier will be required, however, to report circuit additions on a semi-annual basis, noting the specific services for which the circuits are being used (IMTS, IBS, telex) as well as the country served. Non-dominant carriers will be required to give 120 days notice prior to discontinuing service.

Controversy Arises

Perhaps the most controversial issue raised by the portions of the rulemaking relating to satellite communications is the FCC's treatment of Comsat's services. In its April 1985 Notice of Proposed Rulemaking, the commission had tentatively concluded that Comsat is non-dominant in its provision of IBS service and its prospective provision of end-to-end service, and should therefore be subject only to streamlined tariff and facility regulation. Such proposals were, of course, generally supported by Comsat. Comsat's competitors, however, opposed this proposal and urged that these services remain subject to traditional regulation. Many argued against reducing regulation of Comsat International's tariffs at this time on the grounds that Comsat International has the opportunity, incentive and ability to set its prices at an unrealistically low level and, through its exclusive access to the Intelsat space segment, has other advantages over its competitors. Streamlining regulation of Comsat International, these parties maintained, could irreparably harm competition in this emerging industry and eventually lead to control of prices by unregulated monopolies.

The commission was therefore urged to retain full regulation of Comsat International's IBS services at least until it has accumulated sufficient evidence to assess the potential impact of reduced regulation of Comsat International's IBS services in the marketplace. Nevertheless, the commission deemed Comsat International's IBS and end-to-end services as non-dominant.

First, it reasoned that just because a service is in the developmental stages is not in itself sufficient to find that one

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carrier is dominant. Second, IBS is substitutable with other non-IMTS private line data services, so there is no reason to treat any IBS service provider as dominant. And third, the Comsat name and its overseas PTT relations will not give it an unfair advantage over its competitors since many other non-IMTS service providers have similar advantages.

The commission noted in its order that the parties opposed to non-dominant status for Comsat's IBS service offerings were concerned about potential anti-competitive behavior based on Comsat's monopoly provision of space segment and other activities in which it possesses market power. The commission concluded, however, that there exist sufficient safeguards — structural and administrative in nature — to minimize any anti-competitive dangers arising from streamlining regulation of Comsat's IBS services. These safeguards, in the FCC's view, include the structural separation of Comsat's competitive activities, such as IBS, and its non-competitive jurisdictional activities (Intelsat, Inmarsat), as well as extensive financial reporting requirements. The FCC believes that the annual financial statements and consolidated capitalization plans required to be filed by Comsat — in which it must treat Comsat International's activities separately — will enable the commission to detect any attempts at anti-competitive behavior.

The FCC also concluded that Comsat International does not have any substantial advantages over any other carrier offering the same or similar services because Comsat International must take space segment from Comsat under the same tariff as other carriers, and has no better access to information from Intelsat than any other carrier. Even if Comsat International did have some advantages because of its association with Comsat, its parent organization, the FCC reasoned that would not be sufficient basis for classifying its IBS and end-to-end services as dominant.

For all services other than IBS and end-to-end services, the commission did recognize that Comsat is unique and must be treated accordingly. Thus, Comsat will continue to be treated as dominant, and therefore subject to traditional tariff and facility regulation, in its provision of Intelsat space segment capacity which is provided through Comsat's Space Communications Division. Traditional regulation will also be imposed with respect to Comsat's provision — through its competitive subsidiary, Comsat Services Division, Inc. — of multi-purpose earth station services.

Regarding Comsat International's provision of television earth station service, the commission reversed its tentative conclusion in the April notice that it should be treated as non-dominant. That tentative conclusion had been opposed by many of the carriers commenting in the rulemaking proceeding. After reviewing the pleadings, the FCC concluded that Comsat should be treated as dominant for the provision of television earth station service since Comsat is the only provider of television service at this time and has the market power to charge monopoly prices for the service. The commission stated its intention to retain full regulatory oversight over Comsat's provision of international television service at least until competitive sources develop.

In conclusion, while the FCC has reasonably reduced tariff and facilities licensing regulation imposed on IBS carriers, it has persisted in including in the category of services subject to streamlined regulation all IBS and end-to-end services (but not television service) offered by a Comsat subsidiary. Contrary to the views expressed by many competitive carriers, the FCC believes it has in place sufficient safeguards to prevent anti-competitive behavior by Comsat and that full tariff regulation is therefore not needed. Absent any anti-competitive practices by that carrier, the real winner of the FCC's deregulatory philosophy should be the international user. In the domestic telecommunications arena, for instance, streamlined regulation led to many new service offerings and innovative rate and pricing schemes. If these rate and service changes occur, the FCC will most likely take the next step and actually forbear from regulating the majority of international telecommunications carriers. □

About the Authors

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Insurance Dilemma

It looked as if some insurance problems were being worked out. Then, came the Challenger explosion.

By Tom Kerver

There's more to the relationship between satellites and the weather than the fact that the course of the latter is tracked by the former. The two have something else in common: both insurance for satellites and the weather are extremely unstable and their future directions are virtually impossible to predict with reasonable certainty.

The direction of the insurance industry, as is commonly known, has been veering wildly over the past 18 months. However, early this year there were signs that it was about to get back on a steady course despite the setbacks of the past. Then came the Challenger tragedy, and today there's as much — if not more — uncertainty about satellite insurance as ever.

The recovery from the satellite losses of 1984 and 1985 has been slow. At the recent International Business in Space Conference, which was held prior to the Challenger failure, managing director Gerald E. Frick of Marsh & McLennon, Inc., a leading brokerage firm, said, "The satellite insurance business is so fragile that it could disappear at any time." Frick and the vast majority of his peers in the insurance industry remain realistically worried about the industry's survivability. "The amount available to be underwritten today is less than half of what it was two years ago," he said of the shrinking supply of money.

That was the situation before Challenger's destruction. Now, there are ominous warnings that other underwriters, who remained steadfastly supportive of the industry despite the losses of 1984 and 1985, may be wavering. It's too early to tell what might happen. Most underwriters are realistic business people, so they don't have to move until the Challenger invesitgation has been completed and its findings are released. Even then, assuming that all problems have been discovered and corrected, no commitments for future shuttle launches will have to be made until revised schedules are published.

Obvously, the initial launch portion of the process will come under more scrutiny by insurers from this point onward. The success of getting the shuttle from earth to orbit was its great strength as far as underwriters were concerned. Now, they will probably look at that aspect from a different perspective. Assuredly that will mean an increase in rates once again — if, indeed, there are any more shuttle launches in the near term.

Until Challenger blew up, the insurance industry was fighting back after incurring cumulative losses of $491 million between 1968 and 1985. Many observers were surprised that any underwriters remained in the business

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James W. Barrett: "Underpricing Our Product."

after $438 million of that amount was lost during the past two years. Perhaps one reason for the tenacity was that, during the preceding decade and a half, the losses were a more tolerable $53 million when calculated on a cumulative basis.

In retrospect, the industry seems to recognize today that it was a victim of excessive and possibly unwarranted optimism during the 1981-83 period when everything seemed to go so well. "We were under pricing our product during that time," says president James W. Barrett of International Technology Underwriters, the insurer whose pool of subscribers has suffered some of the heaviest losses in the past two years. "Our rates were substantially lower than they should have been," Barrett says.

Today, of course, that's no longer the case. Even before Challenger, as 1986 began, "premiums (were) 100 percent higher than they were in 1984," according to Barrett. He adds that the customer also has been getting less for those doubled premiums. "Not only is the extent of coverage reduced, but the client frequently must assume responsibility for some sort of deductible," he explains.

These changes, all of which benefit the party providing the insurance, have certainly contributed to the decision by a number of underwriters to stand firm in the face of adversity. Nonetheless, that determination has been shaken.

One thing which has been evaluated, much to the consternation of many insurers, is the attempt by launching agencies to provide their own forms of insurance. That, too, may change; but for now NASA, like Ariane, seems committed to offer a form of launch insurance. That, say some underwriters (among whom Barrett is the most vocal), deprives insurers of part of the opportunity to recoup losses.

Fading Opportunity?

Worse than that, in the minds of many underwriters, are proposals before the U.S. Congress to authorize government-funded insurance. In opposition to those proposals, Barrett argues that "underwriters have paid the losses of the past, so they should have first opportunity to recover those losses. Governments should not be insuring satellites." He gets support on this issue from A. Michael Hewins, vice president of the brokerage firm of Johnson & Higgins. "The government and its agencies should not be in the satellite insurance business, even if they serve as insurers of last resort," Hewins argues.

But advocates on the other side, among the most vocal of whom is Citicorp's Jerry Simonoff, point out that — as an insurer of last resort — the government would merely be stepping in after the insurance industry turns thumbs down on a proposal. Simonoff says this type of government intervention is absolutely necessary to give lenders sufficient assurance that they are not taking unfounded risks in financing satellite ventures. He feels that insurance and financing go hand-in-hand, because if the former is lacking, the latter may be unavailable. Lenders, argues

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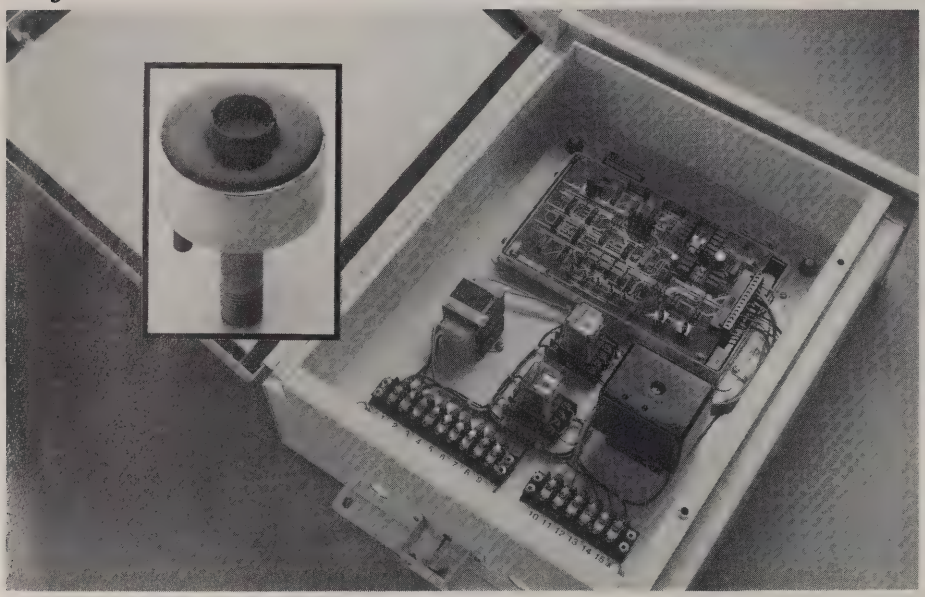

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Simonoff, need to have some assurance that the level of risk they assume will be reasonable.

Realistically, it's doubtful that the government will step in as an insurer, even after Challenger. To some extent, the government was already an insurer on Challenger. It will have to absorb more than $ 2 billion in direct losses in connection with the tragedy. As budgets are pared back, legislators will have a hard time finding any other money to support added risks.

There's still another concern which is haunting insurers. "When RCA sent its K-2 satellite up without insurance, it really shook quite a few people in the industry," says Brian Stockwell, president of Corroon & Black Inspace, Inc., another important brokerage firm. According to Stockwell, it particularly disturbed European underwriters. "They are uncertain about how to proceed now that a satellite has been sent up without any insurance," Stockwell says.

But most people realize that K-2, or any other communications satellite, could just as easily have been on the January Challenger launch as on the November launch. The bottom line is that the risks are nominally greater than they were when 1986 began.

What may happen is that heavy risks will continue to be weighed against the possibility that satellite owners and manufacturers will consider those risks preferable to the high costs of insurance. If future satellites continue to be launched without insurance, insurers will not have the sort of opportunity to recover their investment which Barrett says they want.

Because the future of the launch process is so uncertain, a great deal of reflection seems to be going on at the moment. Regardless of what launch vehicle may be used, insurers remain very concerned about multiple launches on a single mission. It makes no difference whether that mission is the shuttle, Ariane or something else. Insurers are loath to see more than one insured object per mission.

Marsh & McLennon's Frick, a few days before the Challenger explosion, said, "It just doesn't make sense to put two or more satellites on one shuttle." That may be the resounding cry of the insurance industry in the months ahead. Insurance, at whatever cost, is going to be extremely difficult to come by if the launch agency decides to double-up or triple-up on its satellite payloads. Until now the major problem was the fact that only a limited amount of coverage was available for any given mission. But, after last year's Ariane failure and this year's shuttle loss, that problem is compounded.

Ironically, there's bound to be pressure for more, rather than less, piggybacking on missions because launch schedules will be severely setback in the wake of Challenger. Ariane's docket is full for 1986. The company has announced, however, the potential for eight additional satellite payloads during 1987 and 1988. This will surely include more multiple payloads. If and when the shuttle program gets back into gear, the same can be expected.

There's no doubt that insurers will be facing many dilemmas in the months ahead. How they react to those dilemmas could well determine the future course of insurance for the entire satellite communications industry. □

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Societe Europeene des Satellites (SES) has announced that the Luxembourg Parliament has passed a law allowing the government to grant a state guarantee of 3.5 billion Luxembourg francs (approximately $56 million) to the creditors of SES for the GDL satellite project. According to SES, it now has at its disposal the option to secure loans guaranteed by the Luxembourg state up to an amount to its committed shareholders' equity. The State guarantee is in addition to the 1 million Luxembourg francs (approximately $1.6 million) shareholders have already invested in the project.

Francois Schoeller, president of ***TeleDiffusion de France (TDF),*** the public corporation that operates French television, radio, cable and other broadcasting transmission facilities, has announced that TDF has contracted with four companies to lease the four channels of the direct broadcasting satellites TDF-1 and TDF-2. The companies include that of Lord Maxwell, a British press editor; Seydoux-Riboud-Berlusconi, a Franco/Italian company, the Luxembourg company CLT, and a new public company for cultural programming. The consortium headed by Jerome Seydoux and Silvio Berlusconi planned to launch channel 5 last February as a service called "Multiville." The winning consortium for the sixth french channel consists of French advertising agencies ***Publicis*** and ***Agence Gilbert Gros; Gaumont,*** a French production and distribution company; and ***NRJ,*** a privately-owned radio station. The sixth channel will be devoted mainly to popular music and aimed at young people, TDF says. TDF-1 is scheduled for a November launch by Arianespace, with broadcasting to begin in 1987.

ComputerLand Corp., plans a new satellite television network, which eventually will comprise more than 650 ComputerLand stores in the U.S. and Canada. VideoStar Connections, Inc. will install and operate the Ku-band network, which will use one-way video and two-way audio. The network will begin with a 12-week pilot project involving 20 ComputerLand stores and four participating vendor/sponsor sites. Sponsors for the initial broadcasts are computer manufacturers ***Compaq Computer Corp.*** and ***Star Micronics,*** software publisher ***Ashton-Tate,*** and ***AST Research,*** a manufacturer of computer components.

Ethereum Scientific Corp. has completed and delivered a full redundant transportable C-band uplink to ***Dove Broadcasting,*** a religious broadcasting company owned by Carolina Christian Broadcasting, which will use the uplink primarily for its Nite Line Television Network. Ethereum Scientific has an agreement with Dove for exclusive marketing rights to the uplink and will be using it for occasional uplinking purposes.

Skyswitch Satellite Communications Co. has announced the sale of Skyswitch transportable earth stations to ***Lyman Bros.,*** a Salt Lake City-based oil field services company that supplies communication and television services to the oil industry. These earth stations will be used to provide voice and data communication services from remote oil drilling sites in the Western United States to major control locations. This order represents the first part of a contract expected to exceed $1 million in value during the next year, Skyswitch says.

Accu-Weather, Inc. and ***Siscorp*** have announced a new venture under which Accu-Weather's ready-for-air graphics, satellites and radars, and Accu-Data service will become available on the Siscorp Satellite System. Accu-Weather also will become a marketing agent for all of Siscorp's products.

Satellite Gateway Communications has installed a new Ku-band antenna at Satellite City, the company's teleport complex in Carteret, N.J. The 7-meter antenna will work with the Ku-band satellites now in orbit to meet the increased utilization by broadcasters of the higher power satellite for occasional video and remote news gathering feeds, Satellite Gateway says.

Equatorial Communications Co. has reached an agreement with ***Farmland Industries, Inc.*** to supply and operate a private satellite-based data transaction network. The contract with Farmland, a Kansas City-based farm supply cooperative, is the first announced for Equatorial's new Initial Deployment Program. The rental/purchase program enables customers to obtain interactive data networking capabilities for a single monthly charge. The network will replace a portion of the telephone network used to transmit information between Farmland's remote facilities and corporate headquarters. Linking remote terminals with the IBM 3084 mainframe computer at Farmland's corporate data center, the network will enable personnel to process orders, payments and inventory information and to access statistics stored in Farmland's central data base. Equatorial will provide Farmland with hardware and network services for linking 100 sites.

Fairchild Transmission Systems, a unit of Fairchild Industries, Inc., has been awarded a contract by ***Comsat International Communications, Inc.*** to provide two C-band Intelsat Business Service (IBS) earth stations. The stations, to be built and installed by mid-year, will provide data and voice services internationally in both the Atlantic and Pacific Ocean regions. Fairchild Transmission Systems has responsibility for the systems engineering, integration and testing of the stations.

Satellite Conference Network (SCN), a wholly-owned subsidiary of American Can Corp., has selected ***Scientific-Atlanta's*** Echelon satellite security for its private video network. The Echelon system is a combination of Scientific-Atlanta's satellite communications products and its proprietary secure transmission format, B-MAC. SCN plans to deploy more than 1,000 video receive stations with downlink decoders throughout the United States, with further expansion projected. ***Prostar,*** a Houston-based provider of satellite television encryption and networking services, also has placed an order with Scientific-Atlanta for the Echelon secure satellite transmission system. Prostar, which has participated in pay-per-view sporting and musical events since 1981, plans to expand its services to business and entertainment customers, providing private business teleconferencing, legalized gambling and turnkey corporate satellite networks.

BrightStar Communications of America, Inc., has been formed by ***Samuel Broadcasting Group,*** Los Angeles, which, through its wholly owned UK subsidiary, Samuel Broadcasting, Ltd., recently acquired a 50 percent interest in BrightStar Communications, Ltd. BrightStar Communications of America will provide sales, marketing, administration and transmission services and facilities in the United States for the London-based BrightStar Communications, Ltd., as well as conduct other satellite-related activities. Ernest S. Samuel, chairman of Samuel Broadcasting Group, heads companies across Europe that distribute television programming and acquire and fill commercial time on independent and national broadcast television networks there. Two of Samuel's European companies control transponder time on two Eurpean satellites. In addition, Samuel has substantial interests in the manufacture of satellite antennas in Europe and their distribution to licensed users. The remaining 50 percent interest in BrightStar Communications, Ltd., is held by Visnews, Ltd., a London-based international news-gathering organization, a supplier of live and taped news feeds for the broadcasting industry. □

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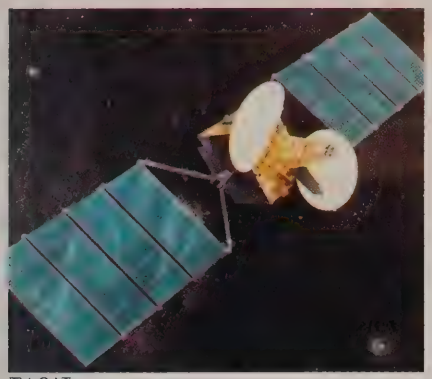

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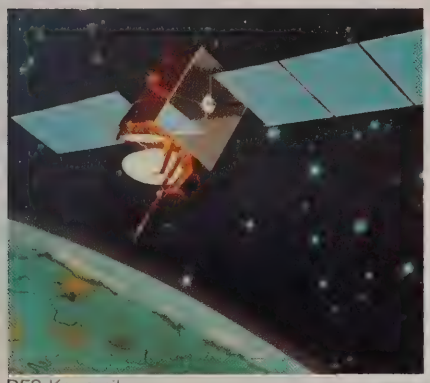

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Taking Stock

In view of the continued upward spiral of the stock market, it's hardly a surprise that both segments of the satellite stock index showed gains during the Jan. 15-Feb. 14 time period. The Challenger disaster may have prevented some issues from showing greater advances and probably had a direct bearing on losses suffered by such companies as Morton Thiokol. Still, gains outnumbered losses by a ratio of better than two to one. Among the most interesting issues was Satellite Syndicated Systems, which gained more than 50 percent in value during this period amid rumors of major corporate changes following on the heels of the opening of new offices on both coasts.

— Tom Kerver

EXC	Company Name	Ticker Symbol	Closing Quote 1/15/86	Closing Quote 2/14/86	Net Change In Period	Percent Change In Period	Price/ Earnings Ratio	Annual Dividend Rate	Annual Dividend Yield	52-Week High	52-Week Low	1984 Book Value	Market to Book Value Ratio
Telecommunications Specialty Companies													
OTC	Andrew Corp.	(ANDW)	19.50	21.00	1.50	7.69	17	0.00	0.00	38.25	13.50	NA	NA
NYS	Anixter Bros.	(ANX)	19.88	21.38	1.50	7.55	20	.28	1.31	22.38	13.50	10.53	2.03
OTC	Artel Communications (L)	(AXXX)	7.25	5.50	-1.75	-24.14	33	0.00	0.00	8.50	4.38	NA	NA
NYS	AT&T	(ATT)	23.63	21.25	-2.38	-10.07	16	1.20	5.65	25.38	19.88	13.26	1.60
NYS	Augat	(AUG)	26.25	25.63	-.62	-2.36	38	.40	1.56	29.50	20.75	10.75	2.38
OTC	Avantek	(AVAK)	19.13	19.25	.12	.63	22	0.00	0.00	25.88	17.00	5.95	3.24
NYS	Aydin	(AYD)	20.63	20.88	.25	1.21	18	0.00	0.00	26.75	16.13	14.52	1.44
NYS	Bell Canada Enterprises (L)	(BCE)	28.25	27.13	-1.12	-3.96	6	2.36	8.70	33.00	25.63	27.06	1.00
OTC	Cable TV Ind.	(CATV)	3.25	3.13	-.12	-3.69	155	0.00	0.00	4.50	2.63	NA	NA
OTC	C-Cor Electronics	(CCBL)	7.25	6.75	-.50	-6.90	d	0.00	0.00	8.75	4.75	NA	NA
NYS	Comsat (H)	(CQ)	35.25	39.38	4.13	11.72	12	1.20	3.05	39.38	27.88	33.12	1.19
OTC	Compression Labs	(CLIX)	10.25	12.25	2.00	19.51	74	0.00	0.00	12.25	5.00	NA	NA
NYS	Continental Telecom (H)	(CTC)	25.75	27.13	1.38	5.36	8	1.80	6.63	27.88	22.00	17.96	1.51
NYS	E-Systems	(ESY)	26.50	27.75	1.25	4.72	19	.50	1.80	32.75	23.50	9.63	2.88
OTC	EIP Microwave	(EIPM)	8.50	8.50	0.00	0.00	45	.12	1.41	15.00	5.50	NA	NA
OTC	Electronic Mail Co. of America	(EMCA)	5.25	6.50	1.25	23.81	d	0.00	0.00	7.75	1.50	NA	NA
OTC	Equatorial Comm.	(EQUA)	8.75	9.13	.38	4.34	149	0.00	0.00	20.25	6.38	NA	NA
NYS	Floating Point Sys.	(FLP)	33.00	32.63	-.37	-1.12	19	0.00	0.00	37.25	23.25	NA	NA
NYS	M/A-Com	(MAI)	14.13	16.00	1.87	13.23	21	.24	1.50	22.50	12.50	9.85	1.62
OTC	MCI Communications	(MCIC)	12.00	13.13	1.13	9.42	23	0.00	0.00	12.00	7.38	5.11	2.57
OTC	Merrimac Ind.	(MMAC)	15.50	14.75	-.75	-4.84	13	0.00	0.00	16.50	10.75	NA	NA
OTC	Microdyne	(MCDY)	5.63	5.50	-.13	-2.31	46	.06	1.09	7.25	4.63	NA	NA
OTC	Microwave Filter	(MFCO)	4.00	3.63	-.37	-9.25	21	0.00	0.00	5.75	3.50	NA	NA
NYS	Northern Telecomm (L)	(NT)	32.63	28.00	-4.63	-14.19	10	.50	1.79	41.13	25.25	15.77	1.78
NYS	Paradyne (L)	(PDN)	7.00	6.88	-.12	-1.71	d	0.00	0.00	17.50	5.63	9.49	.72
OTC	Radiation Systems	(RADS)	14.25	14.50	.25	1.75	23	0.00	0.00	16.13	8.63	NA	NA
OTC	Satellite Synd. Sys. (H)	(SSSN)	6.75	10.25	3.50	51.85	36	.14	1.37	10.25	5.50	NA	NA
NYS	Scientific-Atlanta	(SFA)	11.63	12.75	1.12	9.63	17	.12	.94	14.88	9.75	7.50	1.70
OTC	Stanford Telecom	(STII)	17.25	18.00	.75	4.35	24	0.00	0.00	18.50	11.50	NA	NA
NYS	Taft Broadcasting (H)	(TFB)	85.00	90.00	5.00	5.88	20	1.16	1.29	90.00	57.38	36.29	2.48
OTC	Tele-Communications Inc. (H)	(TCOMA)	36.25	40.38	4.13	11.39	—	0.00	0.00	40.50	23.00	5.49	7.36
NYS	Textron	(TXT)	49.63	56.88	7.25	14.61	9	1.80	3.16	59.75	39.75	34.49	1.65
OTC	Vertex	(VTEX)	6.50	6.50	0.00	0.00	—	0.00	0.00	6.75	6.00	N/A	N/A
OTC	Wavetek	(WVTK)	8.38	9.25	.87	10.38	d	0.00	0.00	9.75	6.00	NA	NA
NYS	Western Union	(WU)	12.63	10.00	-2.63	-20.82	d	0.00	0.00	15.50	7.88	26.57	.38
OTC	Widcom	(WIDE)	4.13	3.63	-.50	-12.11	d	0.00	0.00	13.13	3.00	NA	NA
Diversified Companies													
NYS	Alcoa (H)	(AA)	39.63	44.50	4.87	12.29	d	1.20	2.70	45.38	29.75	40.39	1.10
OTC	Atlantic Research	(ATRC)	23.25	26.25	3.00	12.90	14	0.00	0.00	30.00	22.00	NA	NA
OTC	Austron	(ATRN)	3.50	3.38	-.12	-3.43	48	0.00	0.00	5.13	3.25	NA	NA
OTC	Birtcher Corp. (H)	(BIRT)	5.13	5.25	.12	2.34	d	0.00	0.00	6.38	3.13	NA	NA
NYS	Boeing	(BA)	48.75	50.00	1.25	2.56	13	1.20	2.40	53.50	37.75	16.89	2.96
OTC	California Amplifier (L)	(CAMP)	1.25	1.13	-.12	-9.60	d	0.00	0.00	4.50	1.00	NA	NA
OTC	California Microwave	(CMIC)	9.50	9.13	-.37	-3.89	16	0.00	0.00	12.25	7.63	5.09	1.79
ASE	Canadian Marconi	(CMW)	14.50	15.13	.63	4.34	13	.28	1.85	17.00	13.25	7.44	2.03
OTC	Compact Video	(CVSI)	7.13	7.13	0.00	0.00	d	0.00	0.00	7.75	3.13	NA	NA
OTC	Digital Comm. Associates (s)	(DCAI)	26.67	28.75	2.08	7.81	20	0.00	0.00	29.63	12.75	NA	NA
NYS	Dow Jones	(DJ)	44.25	46.38	2.13	4.81	22	.82	1.77	50.00	36.75	7.86	5.90
NYS	Eaton (H)	(ETN)	65.75	71.50	5.75	8.75	10	1.60	2.24	71.50	49.50	NA	NA
NYS	Electrospace Systems	(ELE)	24.63	21.88	-2.75	-11.17	24	.08	.37	25.13	19.00	NA	NA
OTC	Ericsson (L.M.)	(ERICY)	30.25	32.25	2.00	6.61	16	.85	2.64	35.00	23.25	NA	NA
NYS	Fairchild Ind. (L)	(FEN)	10.38	8.50	-1.88	-18.11	d	.20	2.35	20.25	8.25	16.51	.51
NYS	Federal Express (H)	(FDX)	56.88	65.50	8.62	15.15	25	0.00	0.00	65.88	33.38	NA	NA
NYS	Ford	(F)	57.50	70.13	12.63	21.97	5	2.80	3.99	70.50	40.13	52.86	1.33
ASE	Frequency Elect.	(FEI)	28.13	27.63	-.50	-1.78	19	0.00	0.00	28.75	19.50	NA	NA
NYS	GTE (H)	(GTE)	47.13	49.75	2.62	5.56	d	3.16	6.35	49.88	38.13	36.10	1.38
NYS	General Dynamics	(GD)	65.13	74.63	9.50	14.59	8	1.00	1.34	84.00	62.00	24.58	3.04
NYS	General Instrument	(GRL)	17.13	20.75	3.62	21.13	d	.25	1.20	22.88	12.75	19.01	1.09
NYS	General Motors	(GM)	69.75	79.63	9.88	14.16	6	5.00	6.28	80.63	64.25	NA	NA
NYS	Genstar	(GST)	23.63	26.88	3.25	13.75	8	1.20	4.46	28.00	19.00	NA	NA
NYS	Gould	(GLD)	29.75	29.50	-.25	-.84	d	.68	2.31	37.75	19.63	19.59	1.51
NYS	Harris Corp.	(HRS)	26.00	29.88	3.88	14.92	20	.88	2.95	34.25	22.25	20.48	1.46
NYS	Hewlett Packard (H)	(HWP)	38.38	43.13	4.75	12.38	23	.22	.51	44.13	28.75	13.82	3.12
NYS	IBM	(IBM)	152.63	156.25	3.62	2.37	15	4.40	2.82	158.75	117.38	43.23	3.61
NYS	ITT (H)	(ITT)	38.25	41.75	3.50	9.15	13	1.00	2.40	42.50	29.00	38.73	1.08
OTC	Infotron Sys.	(INFN)	16.00	18.25	2.25	14.06	17	0.00	0.00	24.00	12.50	NA	NA
NYS	Lockheed	(LK)	46.88	50.75	3.87	8.26	8	.80	1.58	58.00	43.25	17.81	2.85

EXC	Company Name	Ticker Symbol	Closing Quote 1/15/86	Closing Quote 2/14/86	Net Change In Period	Percent Change In Period	Price/ Earnings Ratio	Annual Dividend Rate	Annual Dividend Yield	52-Week High	52-Week Low	1984 Book Value	Market to Book Value Ratio
NYS	Loral	(LOR)	34.63	36.88	2.25	6.50	18	.52	1.41	39.00	28.00	NA	NA
NYS	Martin Marietta	(ML)	33.38	34.88	1.50	4.49	8	1.00	2.87	44.38	30.75	6.43	5.43
NYS	McDonnell Douglas	(MD)	74.63	78.25	3.62	4.85	9	2.08	2.66	87.00	64.25	58.55	1.34
NYS	Mitel (L)	(MLT)	6.13	5.63	-.50	-8.16	d	0.00	0.00	7.88	4.63	4.81	1.17
NYS	Morton Thiokol (L)	(MTI)	36.88	33.88	-3.00	-8.13	8	.70	2.07	40.50	27.63	NA	NA
NYS	National Semiconductor	(NSM)	12.88	14.75	1.87	14.52	d	0.00	0.00	15.13	10.13	NA	NA
NYS	Nicolet Instrument	(NIC)	13.88	13.88	0.00	0.00	16	.12	.86	18.13	11.75	9.40	1.48
ASE	Pico Products	(PPI)	2.75	2.63	-.12	-4.36	d	0.00	0.00	5.13	1.75	NA	NA
NYS	Pioneer Electronics	(PIO)	16.63	21.50	4.87	29.28	d	.10	.47	24.38	13.50	9.03	2.38
NYS	Plessey	(PLY)	24.00	27.25	3.25	13.54	20	.64	2.35	28.00	19.25	NA	NA
NYS	RCA	(RCA)	63.00	62.00	-1.00	-1.59	24	1.04	1.68	64.13	37.88	22.56	2.75
OTC	Richardson Elect. (H)	(RELL)	22.50	24.75	2.25	10.00	23	0.00	0.00	26.25	16.00	NA	NA
ASE	RMS Electronics	(RMS)	4.63	4.25	-.38	-8.21	d	0.00	0.00	5.88	3.38	NA	NA
NYS	Rockwell Int'l.	(ROK)	35.50	38.00	2.50	7.04	10	1.12	2.95	41.75	31.38	16.88	2.25
NYS	Sanders Associates	(SAA)	35.00	37.00	2.00	5.71	20	.60	1.62	43.63	29.50	16.58	2.23
NYS	Tektronix Inc.	(TEK)	57.00	64.13	7.13	12.51	19	1.00	1.56	67.50	47.38	41.30	1.55
NYS	TRW (H)	(TRW)	84.75	96.88	12.13	14.31	25	3.00	3.10	101.00	69.00	46.77	2.07
NYS	United Telecomm (H)	(UT)	24.25	27.38	3.13	12.91	14	1.92	7.01	27.50	20.13	18.63	1.47
NYS	Varian Associates	(VAR)	24.75	28.88	4.13	16.69	41	.26	.90	42.38	22.50	19.84	1.46
NYS	Watkins-Johnson	(WJ)	25.63	27.63	2.00	7.80	14	.36	1.30	29.13	21.13	11.88	2.33

Market Diary:

	1/15/86	2/14/86	Net Change In Period	% Change In Period
Telecom Specialty Companies Index	1077.23	1125.02	47.79	4.44
Diversified Companies Index	1091.50	1141.68	50.18	4.60
Standard & Poor's 500-Stock Index	208.26	219.76	11.50	5.52
Standard & Poor's 400 Industrials	230.97	242.21	11.24	4.87
Dow Jones Industrial Average	1527.29	1664.45	137.16	8.98
N.Y.S.E. Composite	120.12	126.65	6.53	5.44
Value Line Index	214.06	222.45	8.39	3.92

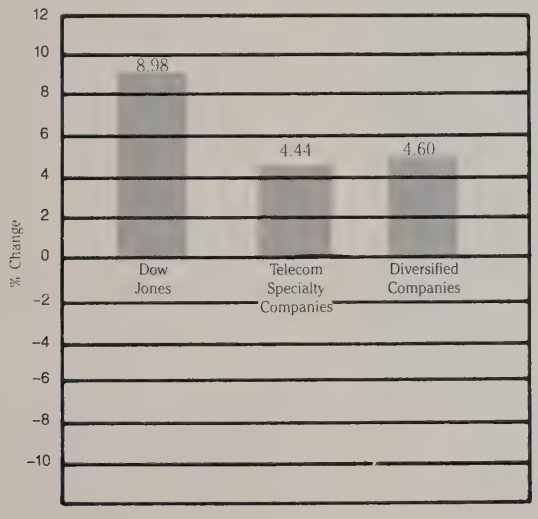
Advances 56
Declines 26
Unchanged 4
New Highs During Month 15
New Lows During Month 8

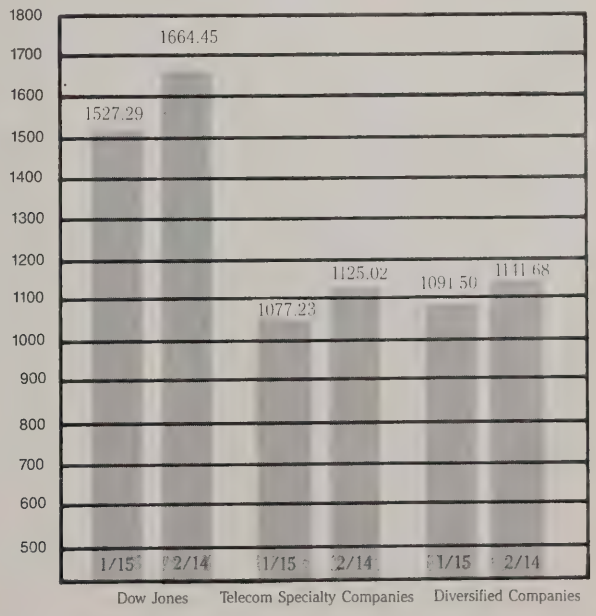
Largest Dollar Gainer — Ford ..... +$12.63
Largest Dollar Loser — Northern Telecom ..... -$4.63

Largest Percentage Gainer — Satellite Synd. Sys. ..... +51.85%
Largest Percentage Loser — Artel Communications ..... -24.14%

Performance Comparison

The following performance comparison shows how diversified and telecommunications specialty companies' stocks performed in relation to the Dow Jones industrial average for the same period.





Key: (H)=New High In Period; (L)=New Low In Period; d=Deficit; (s)=Reflects Stock Split; NYS =New York; ASE=American; OTC=Over the Counter. OTC quotes are represented by the closing bid price.

The information and statistics contained herein have been obtained from sources believed to be reliable but are not guaranteed to be all-inclusive, accurate or complete. This information is not to be construed as an offer or the solicitation of an offer to buy or sell the securities herein contained. This information is subject to change without notice. *Compiled by Nordby International, Boulder, Colo. (303) 449-0326.*

People

Gary J. Worth, former president of Wold Communications, has been appointed president and chief executive officer of BrightStar Communications of America, Inc., a newly formed, wholly owned subsidiary of Samuel Broadcasting Group and the American operating arm of the London-based BrightStar Communications, Ltd. Before becoming president of Wold Communications in 1979, Worth was co-chief operating officer of the Mutual Broadcasting System and a member of the radio network's three-man executive committee.

Tamara Bennett has been named associate editor for ***Satellite Communications*** magazine. Prior to joining *Satellite Communications,* Bennett was a feature writer with *Colorado Business Magazine* and business editor with *Independent Newspapers.* She also served for two years as a staff writer with the *Indianapolis Business Journal.* Bennett will be located at *Satellite Communications'* central office in Englewood, Colorado.

Worth

Bennett

H. Rex Lee, former governor of American Samoa, has been named chairman of the board of the Pacific Telecommunications Council. Lee succeeds ***Joseph Gancie,*** vice president and director of government relations of ITT World Communications, Inc. Gancie will join ***Jorge Kanahuati*** as chairman emeritus of the 175-member organization. Kanahuati is vice chairman for expansion at Televisa Enterprises in Mexico.

In addition, ***Michael J. Mansfield,*** United State ambassador to Japan, and ***Saburo Okita,*** chairman of the Institute for Domestic and International Policy Studies in Japan, have been nominated to the Pacific Telecommunications Council's Board of Advisors. Mansfield was previously U.S. Senate Majority leader for 16 years and has been ambassador to Japan since 1977. Okita is the former foreign minister of Japan.

The Narda Microwave Corp. has appointed ***David Krautheimer*** regional sales manager. Before joining Narda, Krautheimer was a marketing manager for M/A-Com Microwave Power Devices Inc. Narda also has appointed ***Robert Johnson*** instrument sales manager for North America. Prior to joining Narda, Johnson was a product line manager for Polarad Electronics.

Beth Flauding has been appointed director of advertising and promotion for IDB Communications Group, Ltd. Flauding was previously with Watermark, Inc. for eight years, the last three as manager of advertising and promotion.

The FCC has announced that Review Board member ***Norman B. Blumenthal*** has been chosen to serve as senior policy advisor on international communications matters. Blumenthal, who will work closely with the FCC's international coordinator, the chiefs of the Commission's Common Carrier Bureau, Office of Plans and Policy, and other operating bureaus to international services and facilities, has been a member of the Commission's Review Board since 1981.□

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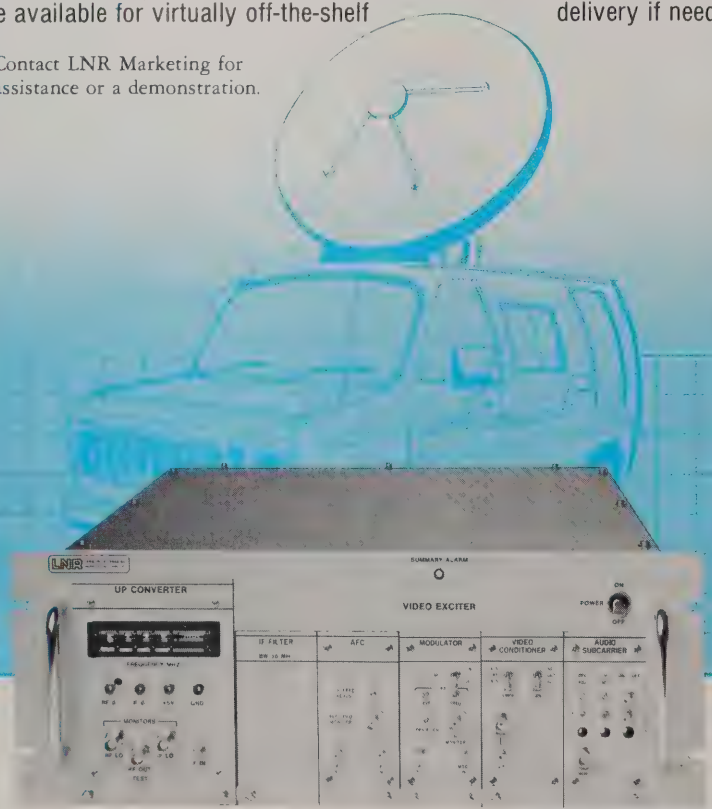
Contact LNR Marketing for assistance or a demonstration.



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If you're looking for industry's most advanced Antenna Control Unit for your medium-size, steerable, parabolic reflectors, we've got news for you.

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The 93C-23 provides sophisticated front end control along with drive motor control for DC motors up to 1 Hp or AC motors up to 2 Hp. Drives are available in rack-mount and antenna-mount packages.

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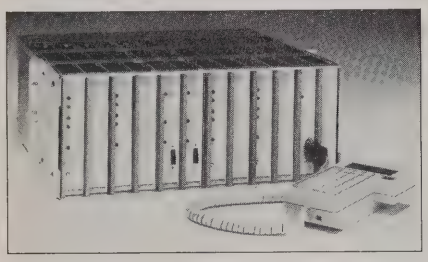
ELECTROSPACE
SYSTEMS, INC.

Products

Digital Echo Canceller: TeleSystems

Comsat TeleSystems, Inc. has introduced a new generation of digital echo cancellers, the EC-5300, which was designed to operate in long-distance terrestrial and satellite telephone networks. According to the manufacturer, each EC-5300 digroup provides echo cancellation on 24 voice channels of a standard 1.544 Mbps T1 digital carrier, conforms to CCITT recommendation G.165 and interfaces directly with DS-1 equipment without altering transmission or signal quality. The unit also uses proprietary VLSI circuitry, which allows for a convergence time of less than 150 ms.



Contact: TeleSystems, Inc., 2700 Prosperity Ave., Fairfax, Va. 22031; (703) 876-3514.

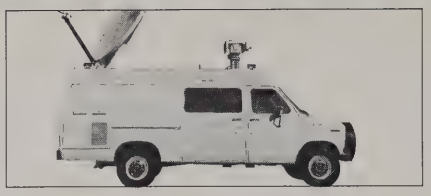
Amplifier: MCL

MCL has introduced the series 10000, a microprocessor-controlled klystron high power amplifier, model 10667-3.34 KW C-band. Using interfacing systems, the central computer command system provides a remotely programmed system, MCL says. MCL's control program includes system diagnosis allowing system monitoring and fault diagnosis. A modem option also may be purchased to allow technicians to monitor and direct system troubleshooting remotely.

Contact: MCL, Inc., 10 North Beach Ave., La Grange, Ill. 60525; (312) 354-4350.

SNG/ENG Van: ENG Corp.

Electronic News Group Corp. has introduced a satellite news gathering van capable of remote site broadcast operation for either SNG or ENG. The van has a roof-mounted remote controlled antenna system that provides ±90° of azimuth and 5 to 60° of elevation coverage, ENG says. Van features include: a height of 106 inches with antenna systems retracted; seating for four people; separate system power for electronic and utilities; a Loran C system for locating vehicle position; and a 1.8-meter single offset reflector SNG antenna. Options include a production and editing package; an ENG transmit or receive system on 2, 7, or 13 GHz broadcast frequencies; 30-foot or 42-foot pneumatic masts; a two-way radio or cellular phone; and an SNG redundancy



package.

Contact: Jim Von Striver, Electronic News Group Corp., 2930 Cloverdale Ave., Concord, Calif. 94520; (415) 798-4060.

Ku-band Mounting Systems: T Mount

T Mount has designed and engineered a new line of Ku-band antenna mounting systems for roof, ground and building side installations. Each of the three mounts and hardware are zinc-coated after fabrication for corrosion resistance and are built of 3/16-inch to 1/2-inch carbon steel.

Contact: T Mount, P.O. Box 2585, East Peoria, Ill. 61611; (309) 694-4135.

Microwave Spectrum Analyzer: Hewlett-Packard

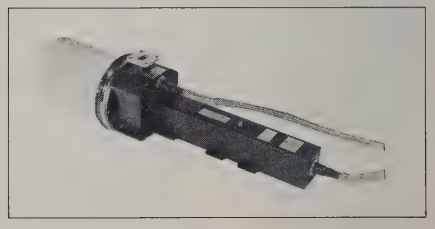
Hewlett-Packard (H-P) has announced the HP 8570A, a bench-top spectrum analyzer that measures signals at frequencies from 10 MHz to 22 GHz. The spectrum analyzer, H-P says, is intended for use in lab, manufacturing and field-maintenance environments for such varied applications as microwave-component testing, communications systems monitoring and servicing, radar-system evaluation and general-purpose lab measurements. The HP 8570A can display the 1.7 to 22 GHz range in one sweep. Two additional controls, frequency span and reference level, can zoom in on the signal for closer analysis. The analyzer also features a digital display that provides independent traces for trace comparisons or storage. Trace-processing functions include maximum hold, sample or peak detection, digital-trace averaging and trace subtraction. The HP 857A is priced at $25,000.
Contact: Local Hewlett-Packard sales office.

TWTs for DBS Systems: Thomson-CSF

Thomson-CSF is now offering a line of high-power, broadband DBS traveling-wave tubes. The top of the line TWT is the TH 3619, which the manufacturer says can deliver up to 230 W output power and which covers the 11.7 to 12.7 GHz band. The unit features a brazed-helix slow wave structure (SWS), cooling by direct radiation into space and a four-stage collector made of pyrolytic graphite. The TH 3579 is a similar tube delivering 100 to 150 W, chosen for the BS2 satellites. Another low power tube for future television satellites is the TH 3660, now prequalified and in manufacturing for the L-SAT project. The TH 3660 will deliver 30 W in the frequency band between 12.5 and 12.75 GHz.

Thomson also has introduced the TH 3694 traveling wave tube, designed for uplink transmitter use, in the master earth stations of direct TV broadcast satellite systems. Features include high, flat gain and low distortion. This wideband tube is particularly suited for multicarrier amplification in the 17.3 to 18.1 GHz band. According to Thomson, the company's patented brazed-helix technology permits obtaining high TWT carrier power and high electronic efficiency without requiring complicated circulating-fluid cooling.

Another new product from Thomson is the TH 2445 klystron amplifier, which is designed to equip the uplink transmitters of future direct TV-broadcasting satellite (DBS) system earth stations, operating at a given point in the 17.3 to 18.1 GHz frequency range. Thomson says the TH 2445 can deliver 1,500 watts of carrier power at saturation.

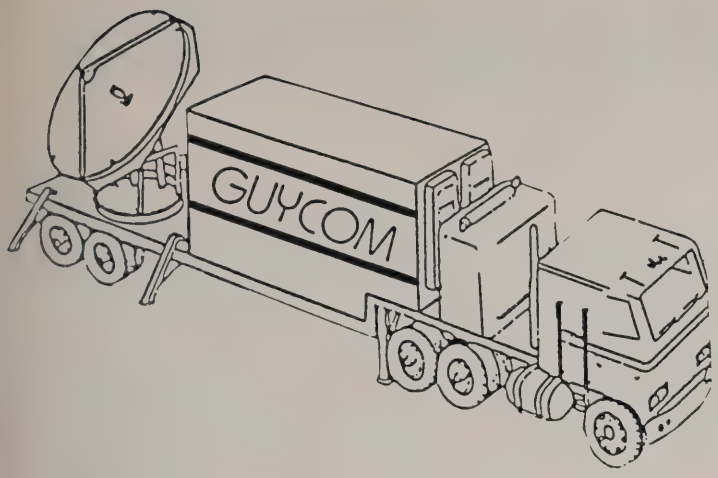


Contact: Electron Tube Division, Thomson-CSF Components Corp., 301 Route 17 North, Rutherford, N.J. 07070; (201) 438-2300.

Oscilloscope: Leader

Leader Instruments Corp. has introduced a new two-channel, 60 MHz attache case oscilloscope, the LBO-325. The scope features an 8 × 10 division, 3.5 inch rectangular CRT with internal graticule and a 12 kV accelerating potential. According to Leader, the dual time base with calibrated delay and alternate sweep allows any portion of a waveform to be expanded for more detailed observation while still displaying the main time base. The trigger facilities include alternate triggering for a stable display of two asynchronous signals, video sync separators, variable trigger holdoff, level and preset controls. The vertical input section of this scope, Leader adds, offers 1 mV sensitivity and add and subtract modes. The price of the unit is $1,500.

Contact: Leader Instruments Corp., 380 Oser Ave., Hauppauge, N.Y. 11788; (516) 231-6900, or (800) 645-5104. □



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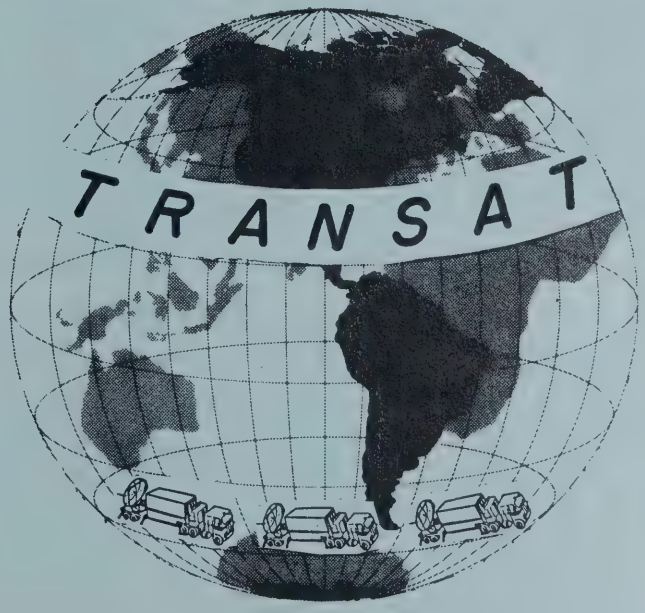

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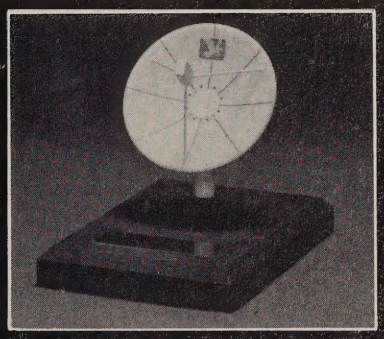

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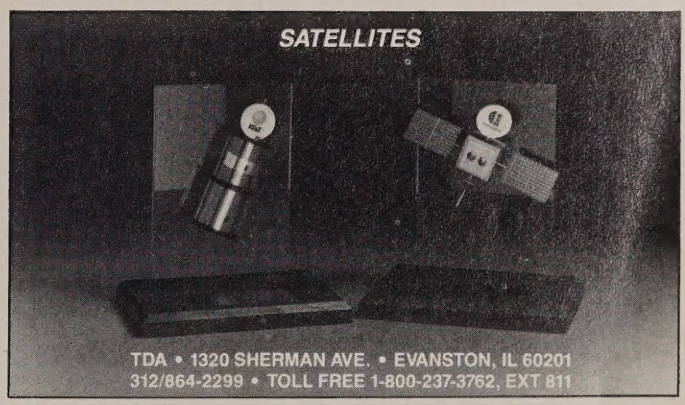

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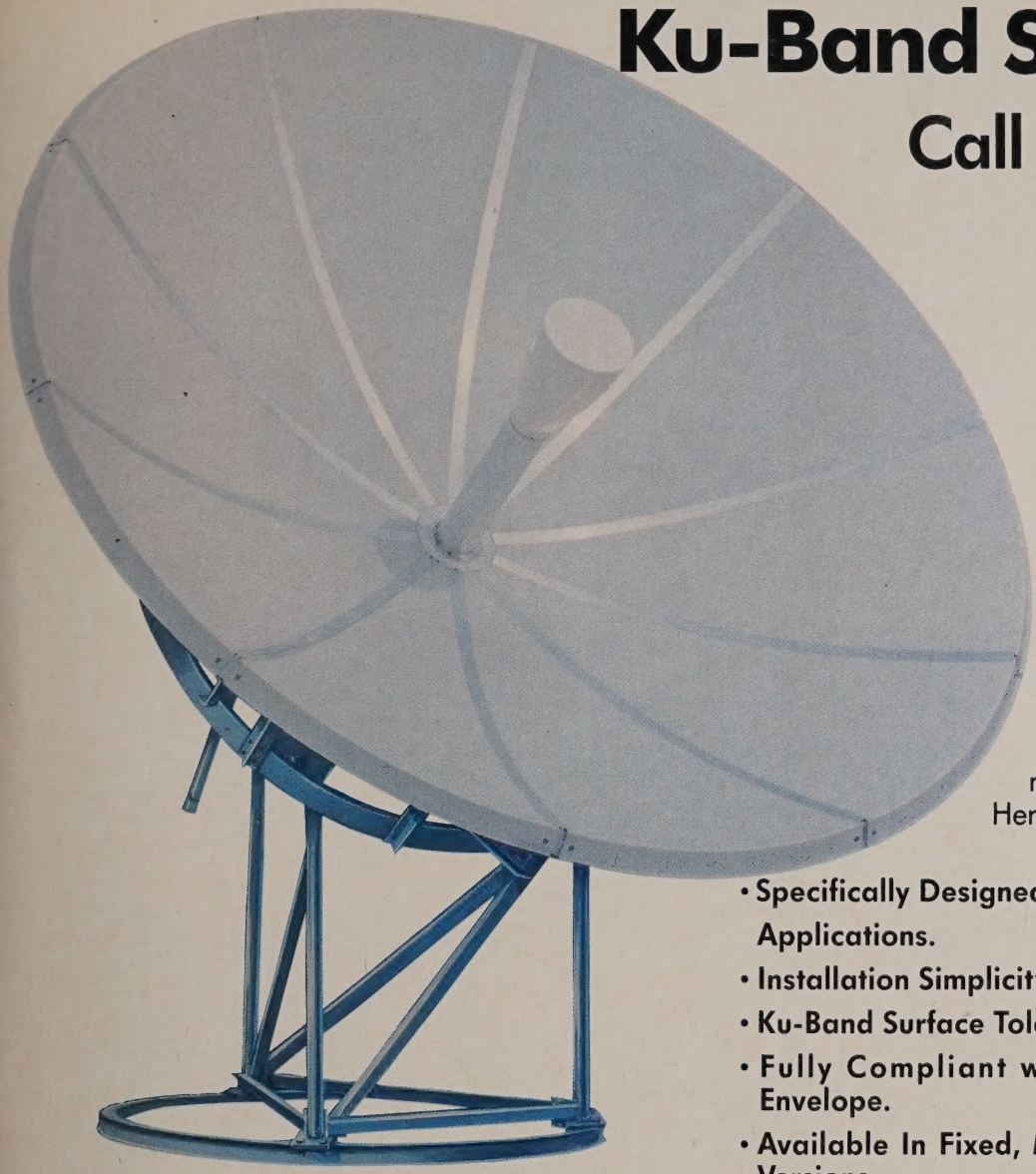

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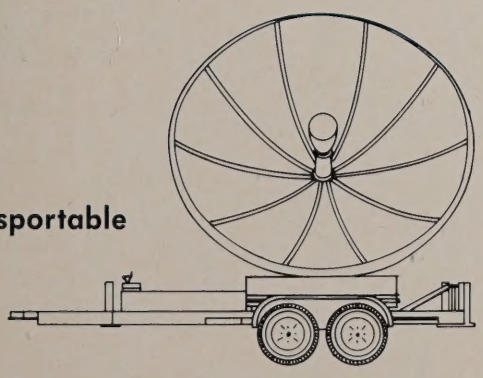

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